

# METAL PRODUCTS MANUFACTURING

# MPM

*Serving the Appliance and  
Fabricated Metal Products Industry*

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TECHNOLOGY  
DEPARTMENT



Stamping Plant Keeps Up-To-Date With Modern Shearing Line — Page 27



Coating Ground Coat at GE, Appliance Park — Page HL-27



Spotlight on Serviceability — Page HL-17



*Not just four Presses—*

**A Complete Production System  
Erected and Proved *Before Delivery***

The way one major manufacturer produces automotive wheel discs may be a clue for you. These four Clearing presses comprise a complete production unit. Stock feed is automatic. Intra-station parts movement is automatic. All operations are coordinated and supervised by an electrical control system that does everything except turn itself on and off.

The automatic feed is designed so that it can adjust for size changes. Should product designs change radically, the presses may be used in another, completely different arrangement, or they may be used



Closeup of the massive automatic feed drive for the Clearing production system above.

as individual machines.

Clearing takes the guesswork out of the job by engineering and building the complete setup. It's then tested (as above) on our assembly floor. That way, we can eliminate a lot of bugs before the job leaves our shop. You can be **confident** when you place your order with Clearing.

Want more details? We'll be glad to discuss a better press production setup for your company. Whether you need a small O.B.I. or a line of straight side mechanical or hydraulic presses, call on Clearing.

**usi Clearing**

DIV. of U.S. INDUSTRIES, Inc. 6499 W. 65th Street, Chicago 38, Illinois  
Telephone PO 7-8700

Circle No. 314 on Reader Service Card.



Many parts exposed to heat inside your appliances don't show, but they can hurt sales if they don't hold up. By designing these with Armco ALUMINIZED STEEL Type 1, you build more hidden value into your products, assure longer trouble-free service, gain more satisfied customers . . . usually at a savings over plated parts.

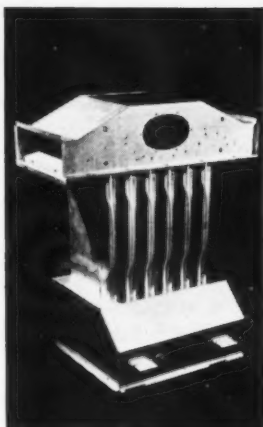
## Where Armco ALUMINIZED STEEL improves appliance performance

Furthermore, Armco ALUMINIZED STEEL provides excellent heat reflectivity that often increases the efficiency of your units. Up to 900 F, this special aluminum-coated steel reflects up to 85 per cent of radiant heat. It resists destructive heat scaling up to 1200 F.



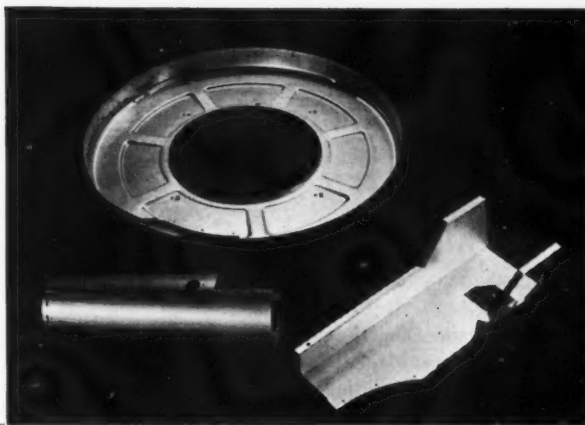
Capitalize on high customer acceptance of steel; put the distinctive steelmark on the products you make.

Proved in more than a decade of service, Armco ALUMINIZED STEEL Type 1 is the economical way to put more sell in your sales story. For complete information, just write Armco Division, Armco Steel Corporation, 2941 Curtis Street, Middletown, Ohio.



New steels are  
born at  
Armco

Parts made of Armco  
ALUMINIZED STEEL shuttle  
heated air to drying  
chamber in clothes dryer.



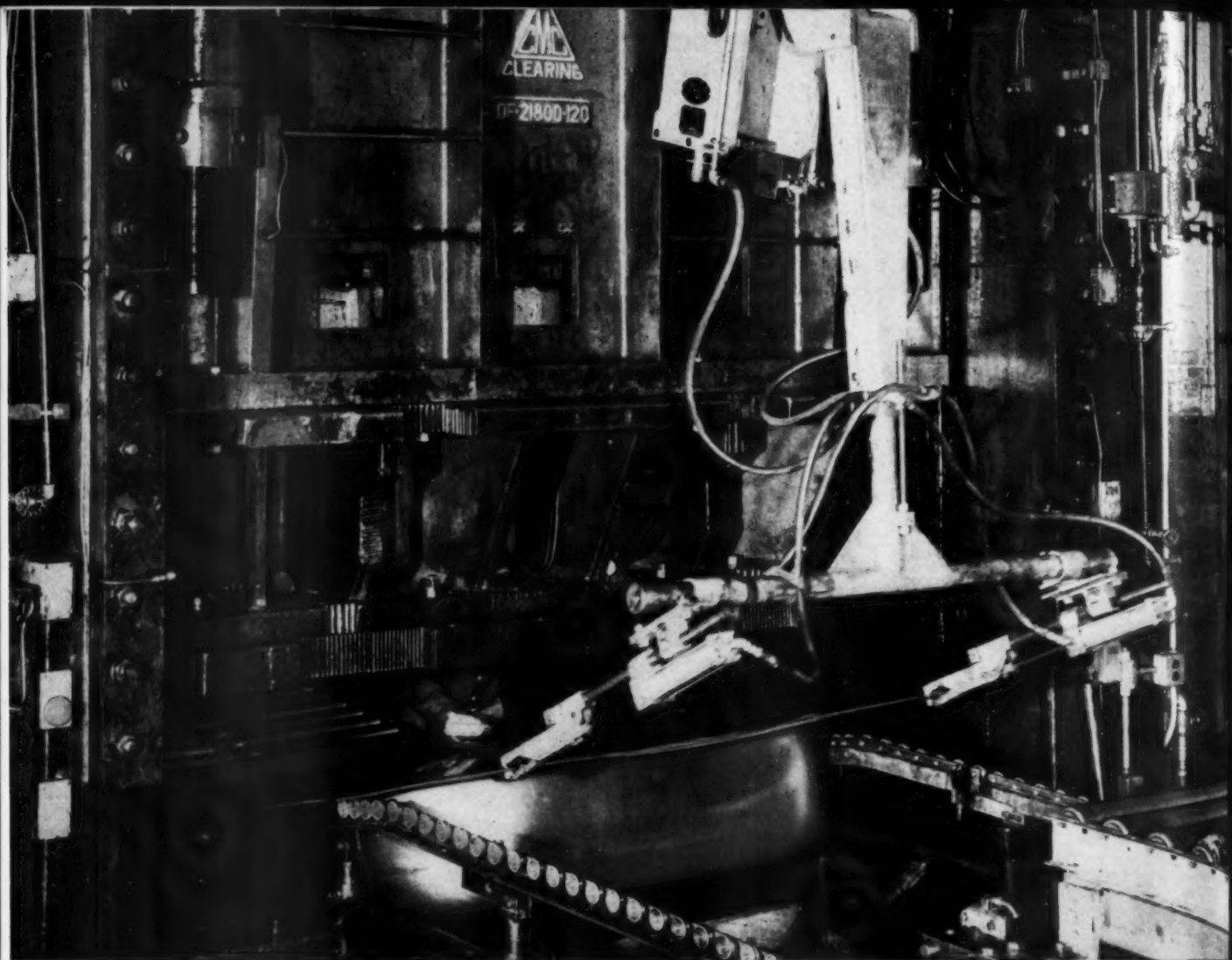
Heat exchanger made of  
Armco ALUMINIZED STEEL  
resists destructive  
heat scaling.

Armco ALUMINIZED STEEL  
inner wrapper for water  
heater keeps heat inside.



Armco Division

Circle No. 307 on Reader Service Card.



## KERNS UNITED SOLVES MAJOR PROBLEM IN DRAWING BATHTUBS AT KAISER METAL...WITH SAVINGS BEYOND EXPECTATIONS!

Determined to make bathtubs from cold rolled stock, Kaiser decided to turn the project over to Kerns United. Even though others experimented for over 7 months with little success, Kerns United, in a few short weeks proved to Kaiser's management that bathtubs could be drawn from cold rolled stock using Kerns "DRY-FILM" Drawing Compound.

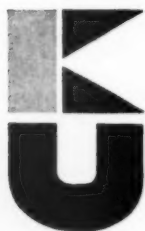
The resultant savings to Kaiser were beyond all predictions. Compound costs were greatly reduced... Use of "DRY-FILM" reduced bathtub scrap from 7% to less than 1%... Reduction in size of deep tub blank

resulted in considerable savings per blank. Kerns "DRY-FILM" also permitted blanks to be automatically fed into the press, thus relieving 5 men from tub line for more important duties.

This is but one example of what can be accomplished by utilizing Kerns capabilities, experience and products tailored to meet your production requirements.

See the results of a specialized lubricant in your plant at no cost by taking advantage of Kerns Memo Billing Trial Basis.

*Write now for Portfolio on "Proper Handling and Application of DRY-FILM Drawing Compound."*



*World's largest Exclusive Manufacturer of Specialized Industrial Lubricants.*

### KERNS UNITED Corporation

2659 East 95th Street • Chicago 17, Illinois

Subsidiary: KERNS PACIFIC Corporation, 630 N. Batavia St., Orange, California  
Offices in Principal Cities throughout the U.S.A.

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# MPM

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## METAL PRODUCTS MANUFACTURING

FROM RAW METAL TO FINISHED PRODUCT

A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. The editorial scope covers design, engineering, market and statistical information and technical and practical information on plant facilities and all phases of manufacturing "from raw metal to finished product." Free controlled circulation to top management, sales management, purchasing, engineering and key plant management and supervision in metal product manufacturing plants. To others, subscription price is \$10.00 per year, domestic. To all other countries \$15.00 per year (U.S. funds). Single copies, \$1.00.

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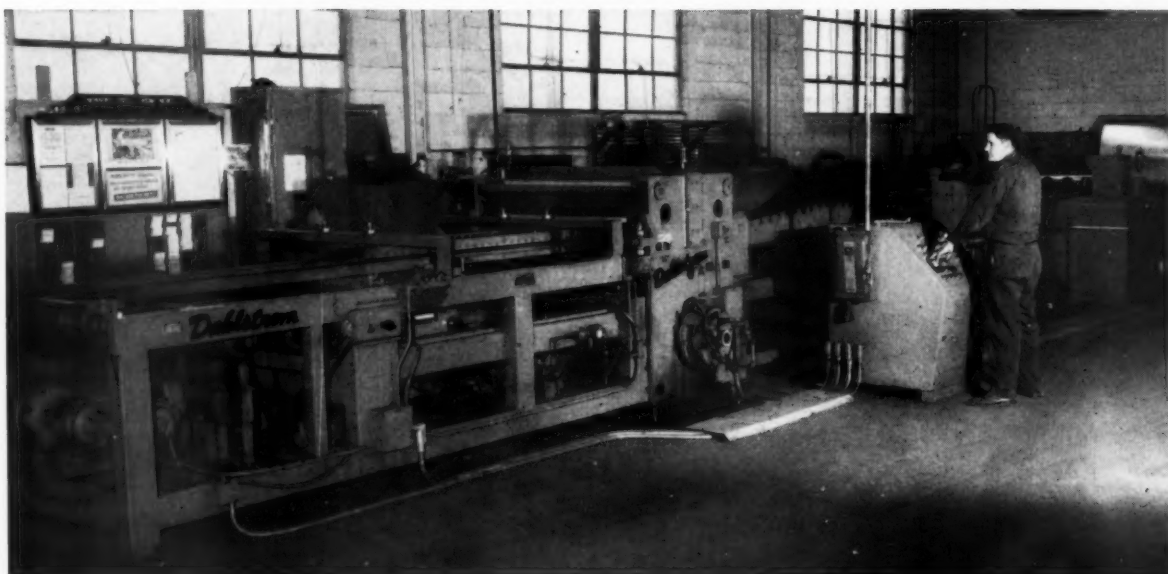
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# Dahlstrom SHEAR LINES

CUT COILS INTO SHEETS

*Accurately!*



Installation at Newark Steel Drum Co., Linden, N.J.

## Dahlstrom SHEAR LINES

### Cut Production Costs

- Use Coil Stock instead of Sheet
- Shear Non-Standard Sizes Quickly
- Reduce or Eliminate Hand Shearing Operations
- Reduce Scrap Loss
- Lower Inventory Investment
- Less Space Needed for Coil Storage

Dahlstrom Shear Lines feature the exclusive Positive Stop Measuring System that assures consistent CUT-TO-LENGTH ACCURACY and motorized changeover with direct reading to a decimal counter.

Let us tell you how leading Sheet Metal Fabricators are reducing costs with a Dahlstrom Shear Line — write

**Dahlstrom MACHINE WORKS**  
INCORPORATED

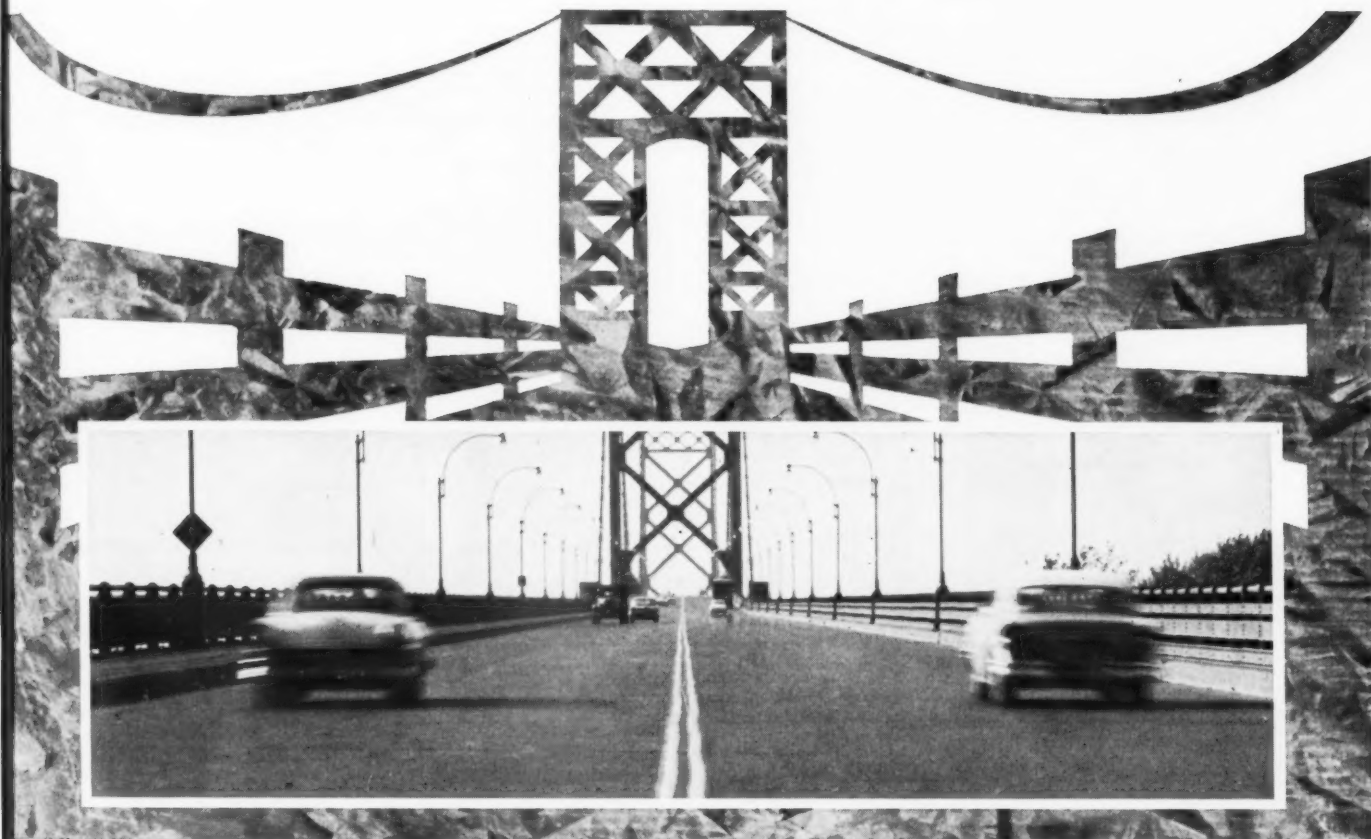
4233 W. Belmont Ave., Chicago 41, Ill., Phone SPring 7-3670

Roll forming machines, flying cut off presses, coil reels, coil lifts, roll straighteners, press feed lines, decoiling and shearing lines.

Circle No. 319 on Reader Service Card.



*Now, the strongest bridges are the fastest to build because they're . . .*



## GUARDED BY GALVANIZED STEEL

Galvanized steel sheeting—long used for permanent concrete forms in building construction—has now been adapted to do the same job for bridge engineers and with remarkable success.

On bridges and their approaches, a heavier gauge sheet is used with deepened corrugations for added strength. This new form assembly is not only strong enough to support heavy concrete slabs, but installation takes only half the time required by other types of form work.

The strength and excellent corrosion resistance of galvanized

steel is also winning increasing acceptance in a wide variety of architectural uses as well as in other areas of highway construction, such as culverts and guard rails.

**WEIRKOTE® IN PARTICULAR** is one galvanized steel that's especially well suited to all these applications. Made by the modern continuous process, it can be worked to the very limits of its steel base without losing even a chip of its zinc protection. Weirkote is made by two National Steel divisions: Weirton Steel and Midwest Steel. For further details, write to Weirton Steel Company, Weirton, West Virginia.



**MIDWEST STEEL**  
Portage, Indiana

**WEIRTON STEEL**  
Weirton, West Virginia



Divisions of  
**NATIONAL STEEL CORPORATION**

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# MEMO

TO— *All spray phosphating engineers*  
 SUBJECT— *Precleaning eliminated*

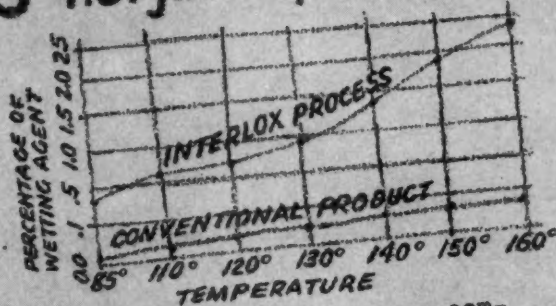
Northwest's Interlox Spray Process now assures high efficiency phosphate coatings, without precleaning, even at low temperatures.

The Interlox Spray Process has proved its superiority through more than three years of research, two years of field testing, in over 100 production installations on everything from auto parts and metal furniture to lighting fixtures and scientific instruments.

## A PROCESS—not just a product!

### CHECK THESE ADVANTAGES

- ✓ No alkali carry-over.
- ✓ Lower maintenance costs.
- ✓ No loose coating, (white powder or smut).
- ✓ Lower operating temperatures.
- ✓ Fewer plugged nozzles.
- ✓ Less hard scale.
- ✓ No flash rusting.
- ✓ Better smut removal.
- ✓ Less control time required.
- ✓ Complete removal of oxidized oils.



The method is simple, no complicated controls or expensive ingredients. A specially developed neutral cleaner is added DIRECTLY to the phosphate bath in whatever proportion is indicated by requirements. Maximum wetting without foam, is an accomplished fact and a fine-grained phosphate deposit is the result.

Northwest's consulting engineers will gladly survey your operation and submit recommendations. No obligation.

Licensed Manufacturers: ALERT SUPPLY CO. Los Angeles, Calif. • ARMALITE COMPANY, LTD. Toronto, Canada



## COMING FEATURES

**MOTOR WHEEL REDUCES PRODUCTION SPACE, INCREASES OUTPUT OF MOBILE HOME OIL HEATERS**

**STANDARDIZATION—CONTINUATION OF A SERIES**

**WHAT ABOUT DOUBLE INSULATION FOR APPLIANCES?**

**INSTALLATION FLEXIBILITY HIGHLIGHTS NEW LINE OF DISHWASHERS**

**AUTOMATIC CLOTHES DRYER STAMPINGS PRODUCED WITH MINIMUM HANDLING**

**CONTINUOUS REGISTER PRINTING ON METAL COIL**

## REDUCE COIL Handling COSTS...



- 1 SAVE MANPOWER**—only 1 man, the crane operator, is required to operate the C-F Coil Lifter above.
- 2 SAVE SPACE**—you can operate a C-F Coil Lifter in a minimum of space, as little as 10" to 12", between piles, regardless of coil width.
- 3 ELIMINATE DAMAGE**—the strong mechanical grip, and legs remaining vertical at all times prevent any damage to stock or material.

Motorized C-F Coil Lifters with Motorized Swivels as above are designed for safe, fast, efficient one man operation. They allow the crane operator to grab, lift, carry and rotate, set down and release the load precisely—in minimum space—without additional help.

WRITE NOW FOR NEW BULLETIN SL 32.

**CULLEN-FRIESTEDT Co.**

1313 S. Kilbourn Ave.

Chicago 23, Ill.

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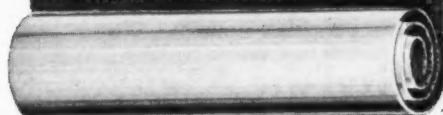
MPM SEPTEMBER • 1961



# Arvinyl

**AMERICA'S  
NO. 1 VINYL  
LAMINATE  
NOW AVAILABLE  
IN NEW  
WIDE COIL  
FORM!**

Arvin has added new wide coil facilities—48" and over—to its narrow coil and sheet facilities. This addition makes Arvin the only source for coil and sheet laminates as well as fabricated Arvinyl stampings and assemblies.



**NEW ARVIN  
WELDING  
TECHNIQUES**  
Body Joint Welds—  
High Production  
Speeds



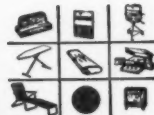
Exterior surface of vinyl unmarred by weld. Vinyl doesn't have to be ground away before welding!



An excellent weld when assembly of trim or other component parts hide the point of welding.

**Arvin Offers A Complete Service From Designer's Sketch To Finished Product**

- 150 Custom Patterns In Any Quantity
- Complete Fabrication And Assembly Facilities
- Single Color 8-Mil Vinyls At Reduced Prices
- New Weatherproof Vinyls Now Available
- Bright Metalized Patterns For Trim Areas
- New Wood Laminates For Cabinetry And Panelling
- Available In Lock-Seam Tubing And Roll-Form Shapes
- Rigidized, Expanded And Perforated Laminates
- Complete Design And Prototype Service



*America's  
largest vinyl  
metal laminator*

ARVIN INDUSTRIES, INC. • Columbus, Indiana  
Arvinyl Division

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## Brushed Nickel-Chrome Plating...the satin finish with subtle (but powerful) sales appeal!

There's a world of soft-spoken salesmanship in the satin finish on this oven door. It's *brushed* Nickel-Chrome Plating, with a subtle charm that's just right for today's high-fashion tastes.

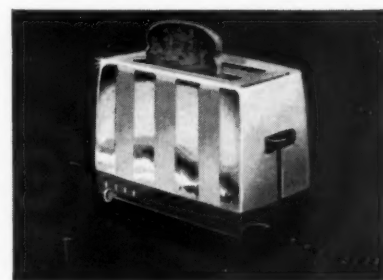
Dignified, distinctive—and ruggedly practical, brushed Nickel-Chrome Plating can bring new popularity to major appliances. Women like the way this finish *keeps* its gentle glow—retains its fresh, just-bought look. Besides being easy to clean, brushed Nickel-Chrome Plating resists abrasion and wear, shrugs off the nicks and scratches of everyday use. And it offers outstanding protection against corrosion.

Where can you profit from the satin touch of today's brushed Nickel-Chrome

Plating? Consider its practical advantages—and its fresh, fashionable sales appeal—for refrigerator doors, ovens and ranges, air conditioner grilles. For virtually *any* major appliance or decorative component.

For useful information on decorative plating, write for our new booklet, "*The Contribution of Nickel and of Chromium to the Durability of Decorative Plating.*" It's yours for the asking.

The International Nickel Company, Inc.  
67 Wall Street New York 5, N. Y.



New idea! Exciting two-tone finishes are easily produced by selective buffing. Bright-and-brushed finishes offer many new design possibilities.

**Inco Nickel**  
*Nickel makes plating perform better longer*

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# MPM

## editor's mail

### One coat direct-on porcelain enamel

Gentlemen: I have been a reader of your excellent magazine for a number of years. Your publication does a great service in filling up a void in the area of appliance manufacturing, namely in the area of communications for the appliance industry.

I have been interested in your articles on "One coat direct-on porcelain." In your latest article you mentioned the previous publication of 23 articles. Do you have copies of these articles available? If so, I would like very much to receive them. Please bill me accordingly.

John H. Bauer, Manager of Mfg. Research  
Manufacturing Engineering, Laundry Group  
Whirlpool Corp., St. Joseph, Mich.

The 23 articles referred to actually include two subjects — one coat porcelain enameling "direct-on" and "low temperature" porcelain enameling. These are included in a bibliography listing on page 43 of the November, 1960 issue of MPM.

The Editors

### Industry and the consumer

Gentlemen: I believe your program of informing industry of the consumer's feelings on the reliability and poor service on many products is a service to both the industry and to the consumer.

Joseph V. Stout  
Metal & Thermit Corp.  
Rahway, N. J.

### Information on Safe Transit

Gentlemen: In your April, 1961 issue of METAL PRODUCTS MANUFACTURING magazine, there is an article regarding packaging at Beckman Instruments in California. This article refers to a National Safe Transit Committee. Can you tell me how I might obtain more information regarding this committee, and how we might become a member?

John F. Ball, Manufacturing Engineering  
Computer Dept.  
Deer Valley Park Plant  
Phoenix, Ariz.

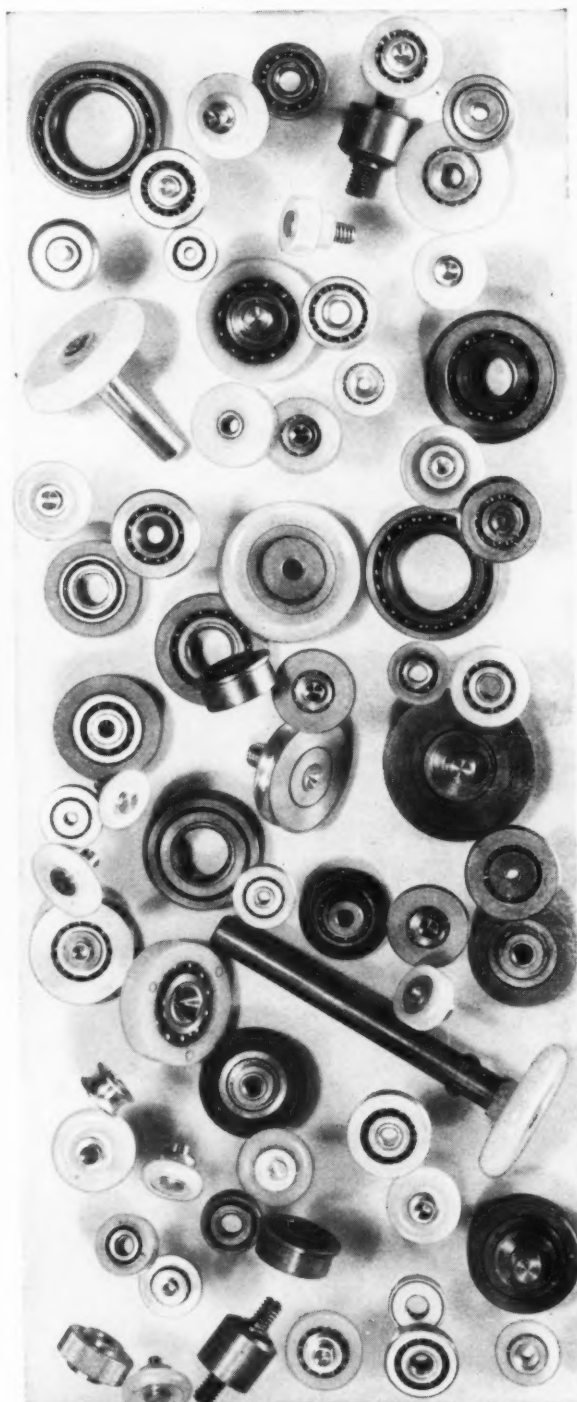
Complete information can be secured from National Safe Transit Committee, Inc., 1346 Connecticut Ave., Washington 6, D. C.

The Editors

### Of value in industrial design

Gentlemen: Would you kindly contact the proper persons in charge of MPM and ask that I be placed on their free subscription list, since I and my department personnel consider the periodical very valuable in our corporate industrial design work.

Karl E. Keber, Manager  
Corporate Industrial Design  
Smith-Corona Marchant Inc.  
Syracuse, N. Y.



For dependable service and fast delivery,

choose **GENERAL**

low-cost, unground ball bearings  
and bearing assemblies.

**GENERAL BEARING COMPANY**

General Bearing Co., Inc. / P. O. Box 455A, W. Nyack, N.Y.

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**A BEAUTIFUL FINISH TO START WITH  
... AND SAVE WITH:  
PRE-COATED STEEL COILS FROM  
ENAMELSTRIP**



Three beautiful ways to finish a job before you start: Vinylcoil® (Vinyl-Clad Steel), Enamelcoil® (Enamel-Clad Steel) and Artcoil® (Polyester-Clad Steel) coils. These cost cutting coils offer exceptional flexibility, savings and eye-catching beauty in the products made from them.

**DESIGN FLEXIBILITY**—Just the look you want through our wide, wide choice of colors, textures and prints.

Vinylcoil—In most colors plus matte, leather and wood-like grains, prints and woven or textured finishes.

Enamelcoil—In any color you desire.

Artcoil—In an almost unlimited range of design and colors, photographically reproduced.

Applications unlimited: auto interiors, appliances, mobile homes, business machines, desks, counters, luggage, wall paneling, furniture. (You name it, we have the pre-coated steel to make it.)

**PRODUCTION SAVINGS**—No cleaning, tumbling, spraying, dipping, rustproofing, baking or drying. Less scrap loss; reduced investment in finishing equipment, space and labor requirements; lower insurance costs; longer die life. No fabricating restrictions—you can bend, crimp, drill, pierce, emboss, deep draw, roll form or lock seam most finishes—work them to the very limits of their tough steel base without damaging their durable coatings.

**SALES APPEAL**—Your product has immediate customer appeal because of its finished beauty, its resistance to scratches, scuff marks, stains and corrosion.

The competitive edge is yours when you start with a beautiful finish. Specify the good looks and long life—the savings and flexibility of these modern pre-coated steel coils from Enamelstrip. Contact your nearest National Steel Sales Office for complete details.

\*Trademark



**ENAMELSTRIP** ALLENTOWN, PENNSYLVANIA

ENAMELSTRIP IS A DIVISION OF **NATIONAL STEEL CORPORATION**

*For a prepaint treatment  
to make your product  
look its best longer...*

# ask Oakite

OVER 50 YEARS CLEANING EXPERIENCE • OVER 250 FIELD SERVICE MEN • OVER 160 MATERIALS



Federal Pacific offers products

## protected with CrysCoat® under the paint

When metal surfaces are first treated with Oakite CrysCoat subsequent paint finishes are satin-smooth and lustrous. A prepaint treatment for steel, Oakite CrysCoat locks paint on, locks rust out. It stops creeping corrosion in its tracks—prevents undercutting of the finish, keeps the product looking its best longer, adds to the reputation for quality of the company that uses it.

That's why Federal Pacific makes a point of emphasizing the protection of CrysCoat on load centers and switch cabinets for home and industry. Quality products *deserve* quality finishing.

There's an Oakite CrysCoat process for every service requirement and every product setup. Included:

- Iron phosphate coating in tanks
- Iron phosphate coating in spray washers
- Zinc phosphate coating in tanks

- Zinc phosphate coating in spray washers
- Heavier coatings or lighter coatings
- High or low temperature processing

All bond paint to metal; all increase corrosion resistance to prevent paint peeling; all improve product appearance. Send for CrysCoat Bulletins. Write Oakite Products, Inc., 17 Rector Street, New York 6, N. Y.



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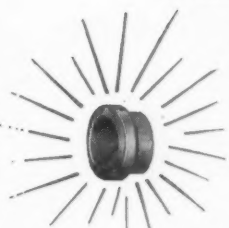


Want to know what makes LUX the top appliance timer?

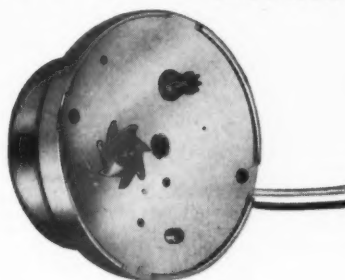


## IT'S SO SERVICE-FREE

When an appliance timer is already function-perfect, fashion-right, and unbelievably simple to operate, there's just one thing that can add to its superiority—long-term service-free performance ... and Lux really has it!



The lube-less motor bearings used in every Lux Timer never need lubrication, thereby preventing formation of heat-caused gummy residues, the most common reason for timer motor failure. The precisely engineered Lux Timer has a history of giving manufacturers and dealers no post-sale grief in repeated service calls that cost time, money, and reputation.

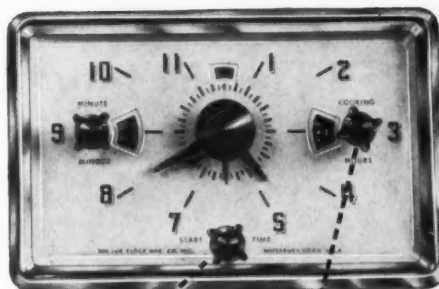


### so simple and so precise ...

Lux's 2-step simple setting is so easy ... on the range timer, for example, simply set time to start cooking and then set number of hours to cook.

The precision-minded Lux Timer automatically shuts off at the exact, cooked-to-perfection instant.

Sell the appliance that's equipped with a Lux Timer, the built-in extra effort needed in today's competition.



SET TIME TO  
START COOKING



SET HOURS  
TO COOK



*LUX...first...for lasting TIME*

95 JOHNSON STREET • WATERBURY, CONN.

Subsidiary: LUX TIME (CANADA) LIMITED • OAKVILLE, ONTARIO, CANADA

Dept. MPM

Circle No. 341 on Reader Service Card.



## New way to protect your metal product... a temporary but tough coat of Geon



Panels for this building were coated and fabricated by Elwin G. Smith Company, Pittsburgh, using "Strip-Gard" strippable vinyl coating made with Geon vinyl by Stoner-Mudge Company, Pittsburgh, a Division of American-Marietta Company. It can be applied by all standard methods including brush, reverse roll, spray, dip, flow and conventional roll coating. B.F. Goodrich Chemical Company supplies the Geon vinyl.

Here's a temporary coating that goes on metal fast, strips off easily. Meanwhile, it gives polished, embossed or coated metals protection during fabrication, storage and shipping. It's an organosol based on Geon vinyl.

Since the coating stretches well and is very flexible, you can corrugate, emboss, roll-form or draw metals coated with it without affecting the coating. In some cases, it eliminates the need for lubrication. Wear on expensive plated or polished dies is significantly reduced. And there's no need for final cleanup after fabrication or assembly.

Because it's made of Geon, the coating protects metals

from the effects of oil, grease and from discoloration or etching of corrosive chemicals. It provides excellent resistance to scratching or abrasion. The manufacturer says it's not designed to protect against weathering, but it will—tests show no staining or embrittlement outdoors for periods up to six months. And the desirable stripping qualities are not impaired.

Here's another way that Geon vinyl is opening new markets, making possible new or improved products. Want more information? Write Department NB-7, B.F. Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

## B.F. Goodrich Chemical

a division of The B.F. Goodrich Company



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NEW COWLES PRODUCT  
ABSOLUTELY TAKES  
BUFFING COMPOUND OFF!  
WE WILL PROVE IT  
IN YOUR PLANT...

Learn all about **Buff-off**  
from this complete brochure

Field tests prove BUFF-OFF is the simplest to use, easiest to control product of its kind. A demonstration in your plant on zinc base die castings or other non-ferrous metals will produce lower rejects and better quality plate at greatly reduced cost. BUFF-OFF will not etch or darken the metal. This is one soak cleaner that really works!

*another FINEST FINISHING PROCESS from*



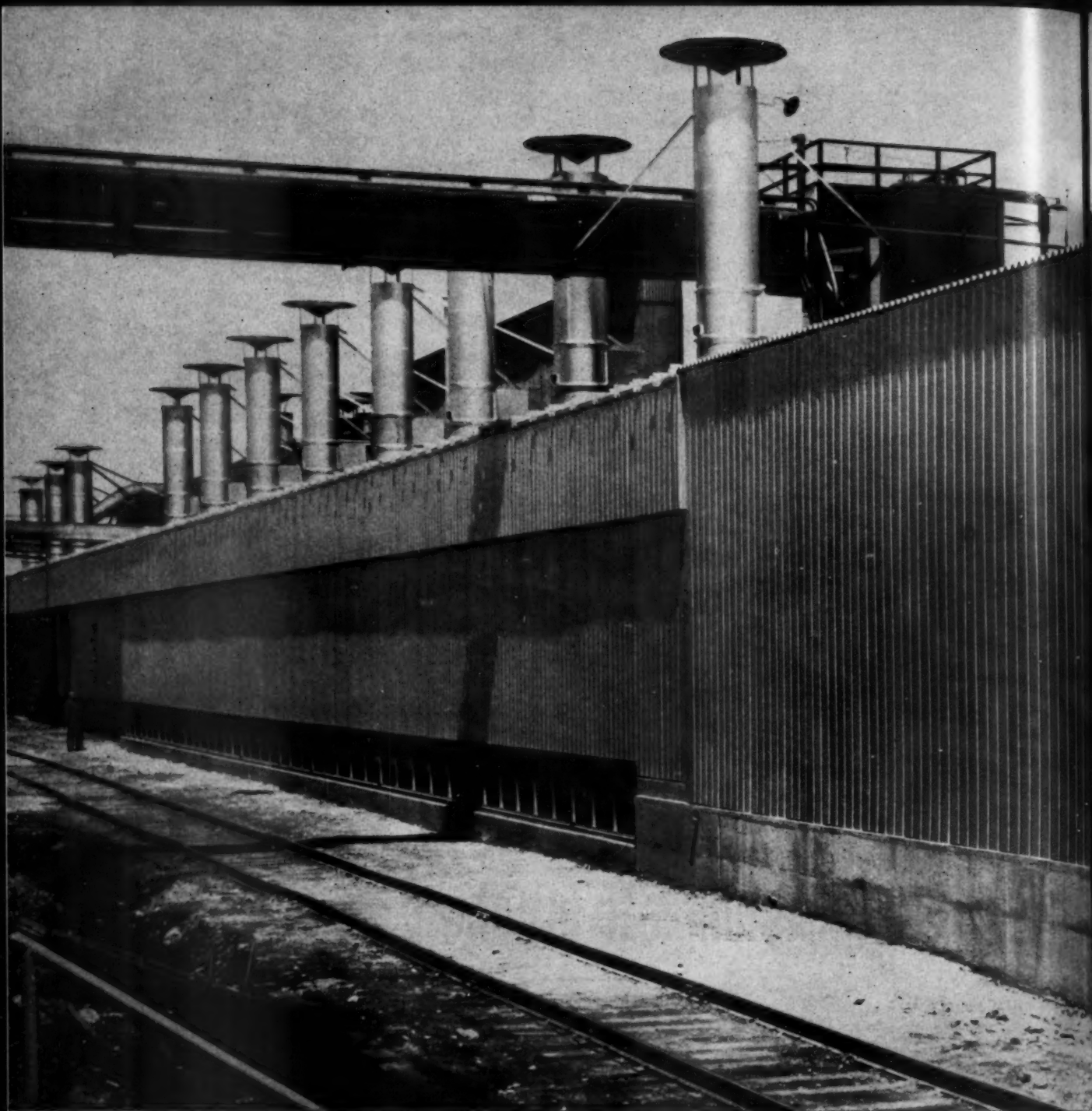
**CHEMICAL COMPANY**

**CLEVELAND 20, OHIO**

In Canada: COATON, LTD., Montreal

Circle No. 317 on Reader Service Card.





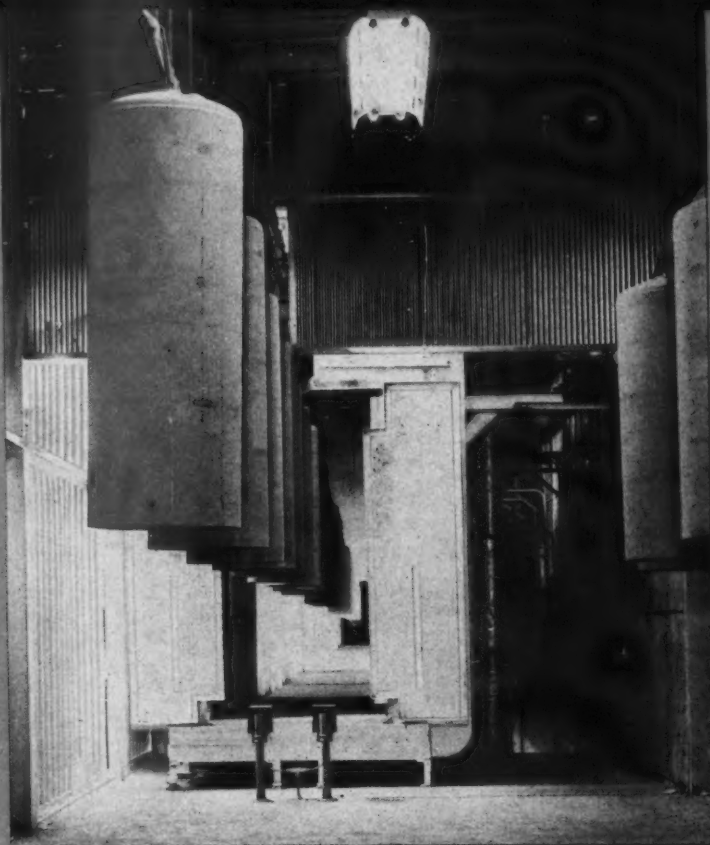
## World's largest water-heater tank furnace

**Continuous radiant-type furnace is housed in 385-foot long, aluminum-sheathed structure constructed completely outside of the plant**

"Firsts" in new equipment and automated-production techniques for the porcelain-enamel industry are not new to Ferro. Completion of the world's largest water-heater tank furnace, built completely *outside* A. O. Smith's present Kankakee, Illinois, plant—and in record time—is one of the most recent achievements. The installation was designed and erected with specific advantages in

mind—and operation since has confirmed both A. O. Smith's and Ferro's judgment.

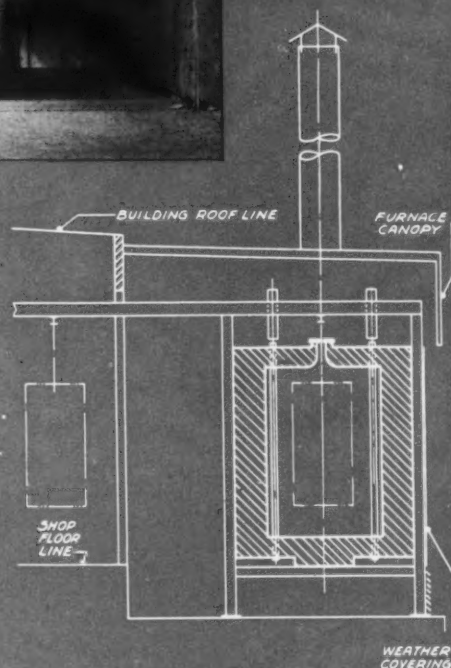
Production capacity geared to increasing A. O. Smith sales of water heaters dictated the furnace design. The gas-fired, vertical, radiant-tube, straight-through type furnace is 225-feet long. A 90-foot cooling tunnel at the exit end, and conveyer extensions at both ends of the furnace, bring its total length to 385 feet. Capacity is 165 thirty-gallon, water-heater inner tanks per hour. The furnace is also capable of firing hot-water storage tanks, up to 36 inches in diameter, in large volume.



Heater tanks are shown here entering the furnace, where a temperature of 1600° F. fuses glass to steel. Electric eyes in foreground signal operator if ware falls from conveyer within the furnace or cooling tunnel.

Construction of this corrugated-aluminum furnace enclosure was also handled by Ferro. Removable panels at foundation level were provided for ventilation and ease of access to burners.

Diagram illustrates how furnace and enclosure were located outside, adjacent to present plant structure.



## ce built for A. O. Smith Corporation in 96 days

A. O.

Smith

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Decision to locate the installation outside the present plant offered several advantages. Heat output is a factor. It also meant that cheaper floor space outside the plant was utilized. No interruption in plant production during construction was caused. And construction debris inside the plant was eliminated.

Temperature within the preheat and firing zones is maintained to close limits by seven recording controllers. Other design innovations were for humidity control and heat dissipation.



What kind of installation do you have in mind—to increase production, efficiency, lower costs? Whether it's a furnace, a drying oven, a spray pickling machine, a dipping machine, or a complete system . . . if it's for the porcelain-enameling process, Ferro can do it better.

A Ferro engineer will answer your inquiry promptly.

**FERRO CORPORATION**

*Engineering Division*

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# Let's develop a habit of cooperation for standard

BY *J. W. Potter* • SALES AND SERVICE MANAGER,  
KING-SEELEY DIV., KING-SEELEY THERMOS CO.

IN AN INDUSTRY AS DYNAMIC AND CREATIVE as the American appliance industry — an industry which is also highly competitive, sometimes furtive and secretive — perhaps it is too much to expect that we can agree to get together to resolve and standardize for our mutual benefit. But, being "naive or a bit short-sighted," I prefer to believe otherwise. Over the years the ingenuity and design freedom of this industry have consistently brought new and better products, at less cost, to their customer, Mrs. Housewife, America. With the same

creative imagination, I believe we can combine to achieve some simple standards to benefit ourselves and our customer. At least let's give ourselves a chance.

How to start a constructive program, even in miniature, may seem perplexing, but the potential gain is certainly worthy of a sincere attempt.

## The problem of knob attachment

We have read and re-read Parts I and II of Mr. R. L.

DRAWING CODE			E	D	F	B	G
K-S Arbor No.	Customer*	Arbor Type†	Length From Mounting Surface To End of Arbor	Arbor Shaft O. D.	Width Across Flat(s)	Length of Flat	Width of Slot
53414	P	A	1.10	.250	.200	1.01	None
53432	R, S, T	B	.90	.250	.1995	.59	.032
53441	V	C	2.11	.250	.190	.78	.046
53443	Q	A	1.00	.187	.170	.69	None
53446	V, W, X, Y, Z	C	.87	.250	.190	.780	.046
53451	Z	C	.98	.250	.190	.78	.046
53456	Z	C	1.16	.250	.190	1.05	.046
53458	X	C	1.73	.250	.190	.81	.046
53461	S	B	1.69	.250	.200	.75	.032
53466	U	B	.83	.250	.200	.52	.032
53473	P	A	1.24	.185	.143	.61	None
53477	P	A	.85	.185	.143	.758	None
53481	P	A	1.58	.185	.143	.95	None
53483	X, Z	C	.75	.250	.190	.624	.046
53486	Z	C	.92	.250	.190	.71	.046
53492	W	D	1.625	.250	.2015	1.555	.032
53494	W	D	.812	.250	.2015	.742	.032
53496	W	D	2.125	.250	.2015	2.055	.032
53532	P	A	1.55	.188	.143	1.25	None
53537	X	D	1.03	.250	.1985	.781	.032
53542	W	D	.531	.250	.2015	.461	.032
53547	W	D	.938	.250	.2015	.868	.032
53549	Z	C	2.25	.250	.190	.71	.046
53552	U	B	1.11	.250	.200	.52	.032
53562	W	D	1.125	.250	.2015	1.055	.032
53572	Y	C	1.47	.250	.190	1.420	.046
53602	Q	A	.72	.250	.170	.56	None
53712	R	B	.62	.250	.1995	.50	.032

†A — single flat, no slot; B — single flat, horizontal slot; C — double flat, horizontal slot and keyway;

\* Letters do not represent initials of company names.

D — single flat, vertical slot.



# ard of mutual benefit

**"Nothing of permanent good was ever achieved without making a start."**

Heckman's (G.E.) "Standardization in Appliance Controls;" also "Reader Quotes" and Philco's Dan Jensen's "Standardization is a Paradox" and the anonymous "Two Sides of the Story."

I quote from Part I of Mr. Heckman's presentation: "Another area which constantly harasses control engineers is knob fastenings — there are about as many types of knob attachment schemes as there are appliances. There are great standardization opportunities in this area."

If nothing else, an exposition of the variety, dissimilarity, and inherent superfluous cost of the many specialized approaches for knob attachment would be interesting, and I believe enlightening, to the industry.

The accompanying K-S standard chart covers only arbors on electrical surface element temperature controls.

A brief study will begin to show some of the perplexing specifications related to these knob arbors and the probable reason for Mr. Heckman saying there is great opportunity for standardization in this area.

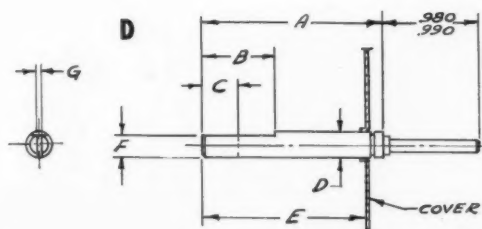
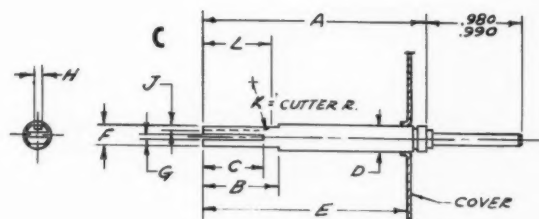
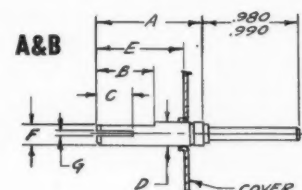
## Some need for variety

Under Code Dimension E, the length of the arbor shaft from the mounting face of the device to the end of the knob arbor, there is unquestionably need for different lengths. This is dictated by the mounting position. Similarly, the Code Dimension D, arbor shaft o.d., calls for some variation. This is dictated in some measure by the size and styling of the knob. Obviously you are not going to put a 1/2-in. o.d. shaft into a tiny 1/4-in. o.d. knob. But at the same time, as can be seen from the chart, 1/4-in. (.250) o.d. shafts are in common use. There are five exceptions to this list: one at .187, three at .185 and one at .188. If a smaller shaft is needed than the

TO PAGE 21 →

G	C	H	J	L	K
Width of Slot	Depth of Slot	Width	Depth	Length	Cutter Radius
None	None	—	—	—	—
.032	.375	—	—	—	—
.046	.63	.080	.029	.71	.50
None	None	—	—	—	—
.046	.63	.080	.029	.76	.25
.046	.63	.080	.029	.71	.50
.046	.63	.080	.029	.98	.50
.046	.81	.080	.029	.74	.50
.032	.375	—	—	—	—
.032	.375	—	—	—	—
None	None	—	—	—	—
None	None	—	—	—	—
None	None	—	—	—	—
.046	.54	.080	.029	.47	.50
.046	.56	.080	.029	.64	.50
.032	.56	—	—	—	—
.032	.50	—	—	—	—
.032	.94	—	—	—	—
.032	None	—	—	—	—
None	.63	—	—	—	—
.032	.38	—	—	—	—
.032	.50	—	—	—	—
.046	.56	.080	.029	.64	.50
.032	.52	—	—	—	—
.032	.50	—	—	—	—
.046	.63	.080	.029	1.22	.50
None	None	—	—	—	—
.032	.44	—	—	—	—

## ARBOR TYPES FOR K-S TEMPERATURE CONTROLS



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8. low stress
9. meets nema white color
10. excellent workability

Desirable for Direct-On as well as for Conventional Enameling

\*Patent Pending

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## STANDARDIZATION SERIES

### Let's develop a habit of cooperation for standards of mutual benefit

→ FROM PAGE 19

1/4-in., it would appear that any one of these three dimensions would be satisfactory. The need for all three is questioned.

#### Eliminate complexities, reduce cost

When it comes to contour details, it is difficult to understand the tremendous variety required by the industry, or even the varieties required by a single company. Certainly there are a number of equally satisfactory methods of putting knobs on the shafts, and a little sympathetic cooperation could, we believe, achieve agreement on one or more acceptable industry options, or standards, to eliminate the complexities involved and to reduce overall costs. For example, under Code Dimension F, with a 1/4-in. o.d. shaft, it is difficult to see a reason for some calling for .200, others for .1995, .190, .2015, .1985, etc.

Under Dimension B, there is much divergence of opinion as to the length of the flat that is required.

Under Code Dimension G, it will be noticed that some call for a .032 slot while others call for a .046 slot.

Under Code Dimension C, we note that there is a great variety in the depth of the cut of the slot, etc.

Studying the knob shaft contours is, of course, only part of the program. The study of the cavity contours in the knobs and the methods of securing the knobs to the arbors are also part of the problem.

As mentioned previously, the chart covers merely our electric surface element temperature controls. We have been in this phase of the business a relatively short time, but it can be seen that even in this short time a variety and complexity of knob arbors are involved.

A similar and even more complex situation exists on interval timers, meat thermometers, roast controls, etc. Similar charts on these products demonstrate the specialized detail that can accumulate.

#### Standards for mutual benefit

If it is conceivable to establish a technique out of which might develop a habit of cooperation for standards for mutual benefit, then, possibly later on, more significant things could be accomplished — like some degree of standardization on attachment of switches and controls to the appliance backguards and control panels and some of the other things Mr. Heckman pointed out.

Basically, I feel that if the automotive industry (Society of Automotive Engineers) has been able to achieve something of lasting benefit to their industry along lines of standardization, so can the appliance industry. Furthermore, I have no illusions that this could be done in a minute, or a day, or a year. It is a continuing process involving a lot of effort. At the same time, I am reluctant to be discouraged by observations on the foolish futility of it all. *After all, nothing of permanent good was ever achieved without making a start.*

**MPM STANDARDIZATION SERIES POLICY:** It will not be our plan to use information which would tend to stifle improvement of products or logical model changes which offer the end product purchaser added use value. **MPM**

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# **MILLS** *Products, Incorporated*

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# ALL THE WAY BACK

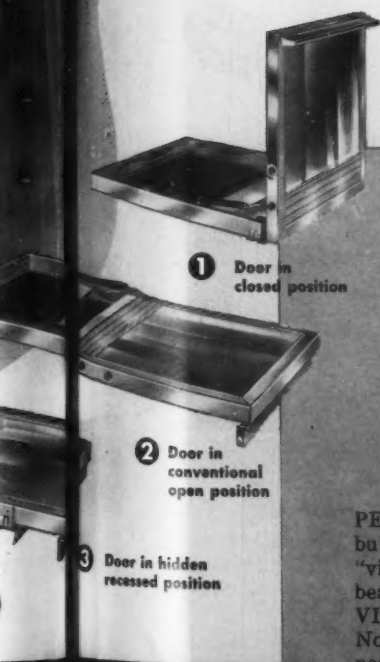
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The PERM-AWAY door comes as a complete unit—door, window, hinges, springs, and handle—ready to install in your oven. It is so simple to assemble that you don't even need a screwdriver — just take PERM-AWAY out of our carton—insert it into the wobble-proof track included. It's ready to operate! To service—just lift it out . . . service or wash . . . and set it back—it's as simple as that. Investigate now what a PERM-AWAY Oven Door will do for your range. Be among the first to feature this exciting new door. Its appeal will mean more sales for you!

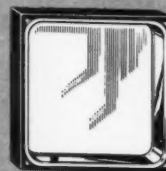
**Glides easily and silently out of the way—  
UNDER THE OVEN!**



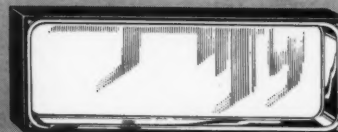
**Mechanically sealed to prevent infiltration  
of vapors and to resist fogging**

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## FACTS ABOUT ARMCO'S NEW ZINC-COATING LINE

Cost .....	\$8,500,000
Strip thickness .....	.1196 to .0299 in.
Strip width .....	30 to 72 in.
Coil weight (entry and exit) .....	50,000 lbs
Coil diameters (rewind) .....	Inside diameter — 20 & 24 in.
Coil diameters (rewind) .....	Maximum outside diameter — 72 in.
Coil diameters (rewind) .....	Minimum outside diameter — 30 in.
Length of sheared sheets .....	5 to 20 ft
Normal line speed .....	38 to 300 fpm
Process capacity .....	30 tons per hour (based on 54 in. wide strip)
Top speed entry and exit ends equipment ..	400 fpm

## Armco bets \$8.5 million on zinc coating growth

AN MPM STAFF REPORT

**T**HE LOWLY GALVANIZED SHEET, formerly associated with the garbage can and scrub pail, is fast taking on new importance with the major steel producers.

At a press meeting in Middletown, Ohio, August 1, Armco Steel Corp.'s top management group proudly displayed a new 72-in. continuous zinc coating line — "the widest galvanizing unit of its type ever built" — to a group of 40 editors and editorial representatives. Company management and operating personnel available at the press conference and plant tour included Logan T. Johnston, president; R. S. Gruver, vice president of personnel and public relations; W.

B. Quail, vice president, distribution; C. G. Davies, vice president and general manager, Armco Div.; M. B. Wilson, vice president, sales, Armco Div.; K. Oganowski, director of metallic coatings, research; and D. C. Osborne, general superintendent of the Middletown works.

Armco is not new to the continuous hot dip zinc coating process, having first produced it at its Butler, Pa., works in 1936. Today the company is one of the world's largest producers of the material, with seven continuous-coating lines (two at Butler, two at Ashland, and three at the Middletown works). The new zinc coating installation at Middletown has an engineered coating speed of 300 ft of strip per minute and can produce 30 tons of zinc coated steel in sheet or coil form

per hour. The new coating facility is 565 ft long, with a cooling tower nine stories in height. A strip of steel 2100 ft long is required to thread the line.

Some 90 pieces of major equipment are built into this zinc coating line, and are operated under completely integrated electronic control. Steel strip going through the line is uncoiled, welded, cleaned, heat treated, coated, cooled, sheared to sheets (or recoiled) and inspected in a continuous round-the-clock operation.

### Good growth trend

President Johnston pointed to record 1960 shipments of zinc coated steel of 3,056,996 net tons, as reported by Amer-

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## Facts on the Market for Zinc-Coated Steel

The appliance industry, including the manufacturers of air conditioning, ventilating, plumbing and central heating equipment, used some 450,426 tons of galvanized steel in 1960. This included 148,913 tons for air conditioning and ventilating equipment, 152,413 tons for plumbing and central heating equipment, and 149,100 tons for all other appliances. This tonnage of 450,426 accounted for 24 percent of the total shipments of galvanized steel to domestic manufacturers\* for the year 1960.

Other fabricated metal products produced by MPM's readers, including such products as food processing equipment, metal furniture, commercial equipment, and steel containers, accounted for an additional 128,434 tons, which amounted to some seven percent of the total shipments of galvanized steel to domestic manufacturers.

These two segments of MPM's readership, combined, accounted for 31 percent of the total shipments of galvanized steel to domestic manufacturers in 1960.

The automotive industry, another primary market for galvanized steel, consumed 218,964 tons of galvanized steel in 1960. This represented some 12 percent of the total shipments of galvanized steel to domestic manufacturers.

Source: American Iron & Steel Institute reports for 1960.

\*The term "domestic manufacturers" excludes shipments to the following American Iron and Steel Institute classifications: warehouses and distributors; construction and maintenance; shipments for export; and steel for conversion into miscellaneous products.

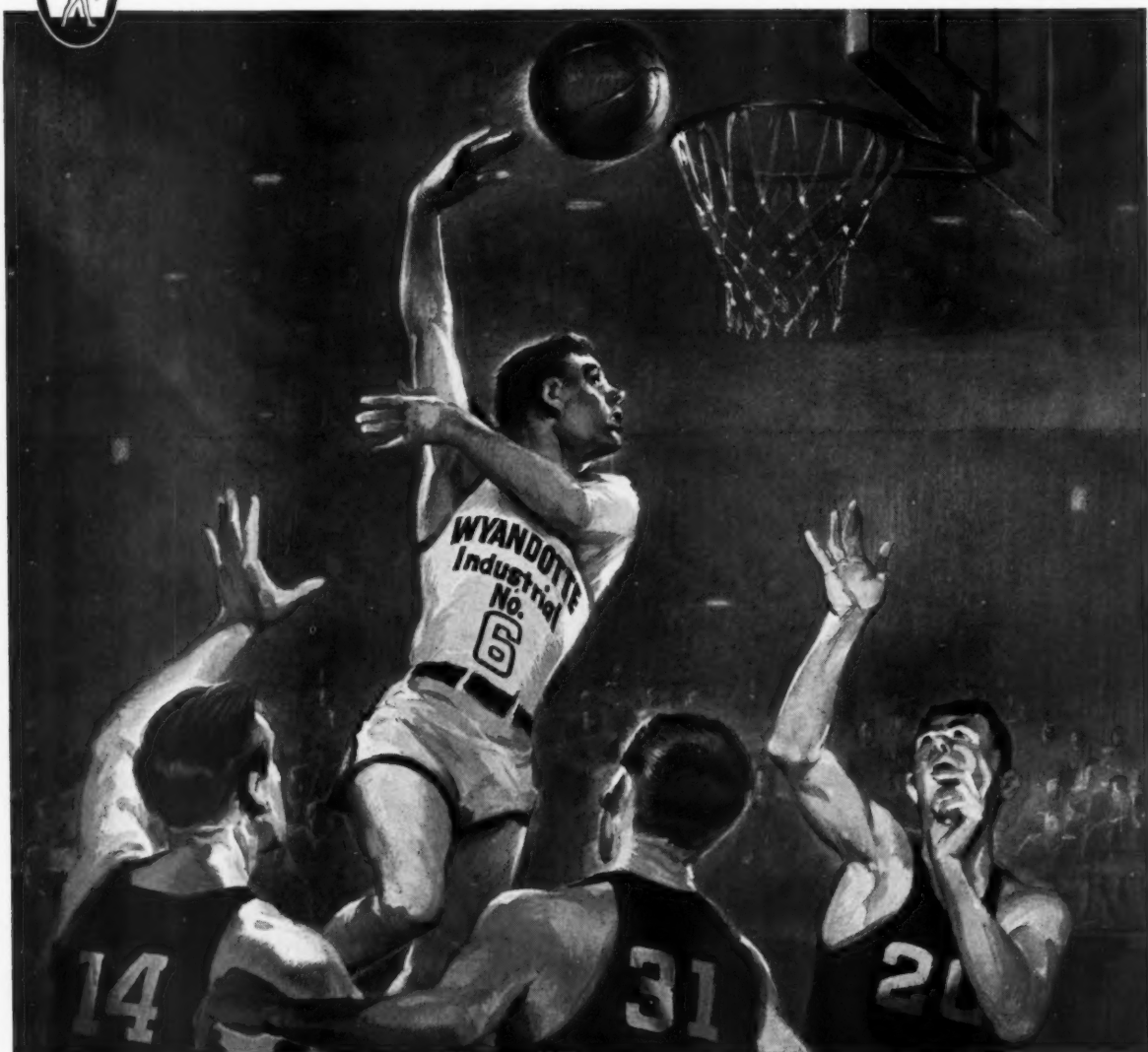


Armco Steel Corp.'s new 565-ft-long continuous zinc-coating line at Middletown, Ohio galvanizes 72-in.-wide steel coils and sheets at speeds up to 300 fpm. A strip of steel almost a half-mile long is required to thread the new line. (Lower photo) — Reportedly the world's largest coils of continuously-coated galvanized sheet are produced on the new 72-in. line.





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## Head and shoulders above the rest

Wyandotte Industrial No. 6 is the leading neutralizer in the vitreous enameling industry. It is unequalled for preparing ware for tightly bonded, uniform enamel coatings. Industrial No. 6 extends neutralizer life up to five times as long as usual plant-mixed solutions. A simple test controls solution strength. Industrial No. 6 is a complete product—you add nothing to it. Call your Wyandotte representative soon for a trial in your own plant.

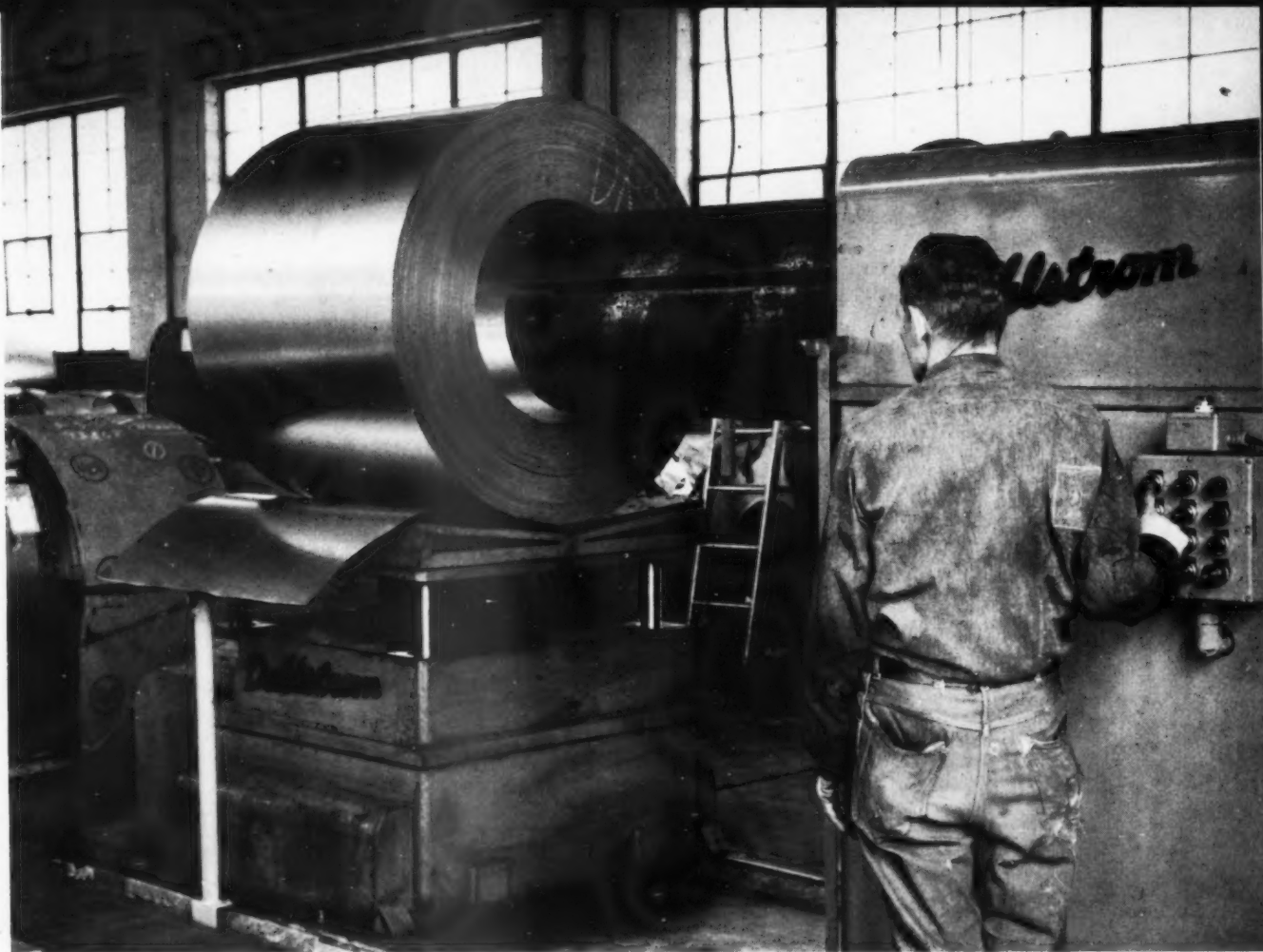
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MPM PHOTO

## Stamping plant keeps up-to-date with modern shearing line

**N**OW IN ITS 81ST YEAR, the contract stamping firm of Geuder, Paeschke & Frey Co., Milwaukee, produces a diversified line of products for several types of end products, including large and small appliances, mobile equipment, industrial equipment, steel containers, and a substantial amount of military equipment.

To keep abreast of the growing challenges and opportunities in the stamping industry, the company began a program of plant modernization and equipment purchasing in 1955. The program was initiated by a new management team which was organized from a diverse cross section of American business.

At the head of the company is Dr. Edwin F. Gordon, president. Gordon was previously president of a management consulting firm. Harold E. Whiteley,

executive vice-president, was formerly with Bethlehem Steel Co., Chicago. Robert C. Colyer, vice president-sales, was previously with the Aeroquip Corp. Bonner Hoffman, formerly with Zenith Radio Corp., is GP & F's secretary, controller and assistant treasurer. L. C. McKay, who had previous experience with Borg-Warner, Sears and Chevrolet, is vice president-engineering. Martin Steffens, vice president-materials, is a GP & F veteran, having been with the firm since 1917.

Among the major pieces of equipment GP & F has purchased in the past five years are three large presses: 400 and 1200-ton hydraulics, and a 1200-ton mechanical draw press. Expander equipment has also been added.

Today the company's 400,000 sq ft of floor space houses 113 presses, ranging

from 10 to 1200 tons, eight press brakes, 51 pieces of welding equipment, and facilities for porcelain enameling, painting, lithographing and polishing and grinding.

Miscellaneous equipment includes a roller leveller, double-seaming equipment, and a variety of inspection devices.

The firm's fully equipped tool and die shop makes all of the tools and dies used in the plant, as well as being responsible for tool repair and maintenance.

One of the latest pieces of equipment added to GP & F's facilities, an automatic shearing line, is illustrated in this feature.

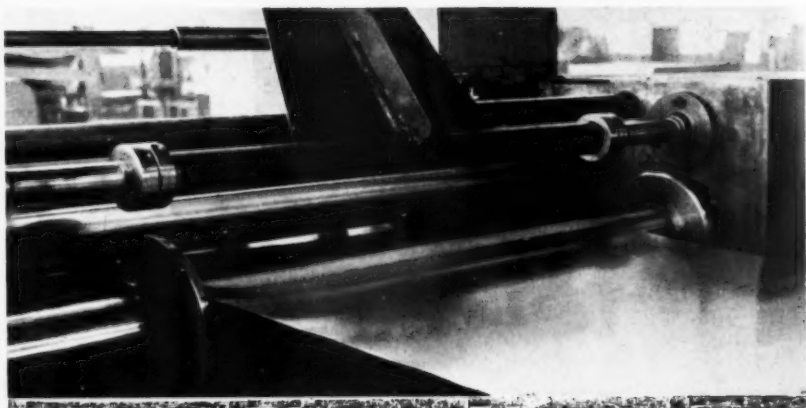
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(Above) — Coil is placed on loading buggy by crane. Electric-powered buggy is mounted on tracks and controlled by operator at right. The coil moves to position on mandrel of pay-off reel. The mandrel is then expanded.



Entire line, except coil loading station, is controlled from central control panel.

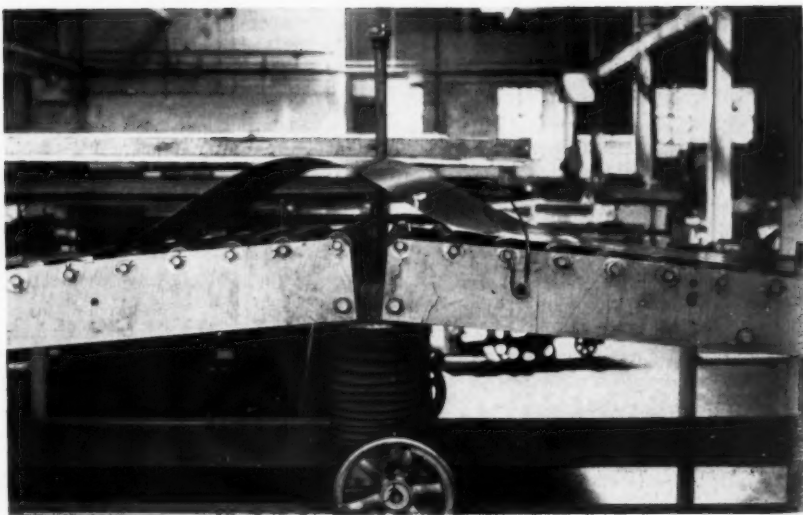
Following the payoff reel is a side trimmer, which is especially valuable when running sheets for container products, because of the resulting uniformly smooth edges.



Following the side trimmer and preceding a roller leveler is a set of steel brushes (foreground). The brushes remove any foreign particles from the surface of the metal.



A hump table follows the roller leveler. The hump caused by the raised conveyor allows for a momentary stop in the forward motion of the sheet while the coil is being sheared. The height of the hump can be adjusted to match the speed of the shearing operation.



automatic equipment at Geuder, Paeschke & Frey handles coil stock up to 48 in. wide . . . .

**T**HE RECENTLY INSTALLED automatic coil shearing line at Geuder, Paeschke & Frey handles steel coils weighing up to 15,000 lbs., in widths of 40 and 48 in.

The equipment has a gage capacity of 14 to 29 in cold rolled steel and can process stainless steel in weights of 16 gage and lighter. A 45-day inventory of steel is kept on hand, and approximately 1300 tons are used monthly.

A 15,000-lb. overhead crane, which runs the full length of the building housing the shearing equipment, serves the line. A large door adjacent to the railroad siding allows the crane to travel out over the railroad cars to unload the coils.

Depending on the gage of material run and the length of the sheets, the shearing line can run at speeds up to 190 fpm. Sheets can be cut in lengths

ranging from 12 to 96 in. In addition to this automatic shearing line, other equipment in the shearing department consists of four smaller, hand-fed shears, a circle shear, and a punch press for corner notching, punching and piercing.

The accompanying photos show the sequence of operations in the automatic shearing line. MPM

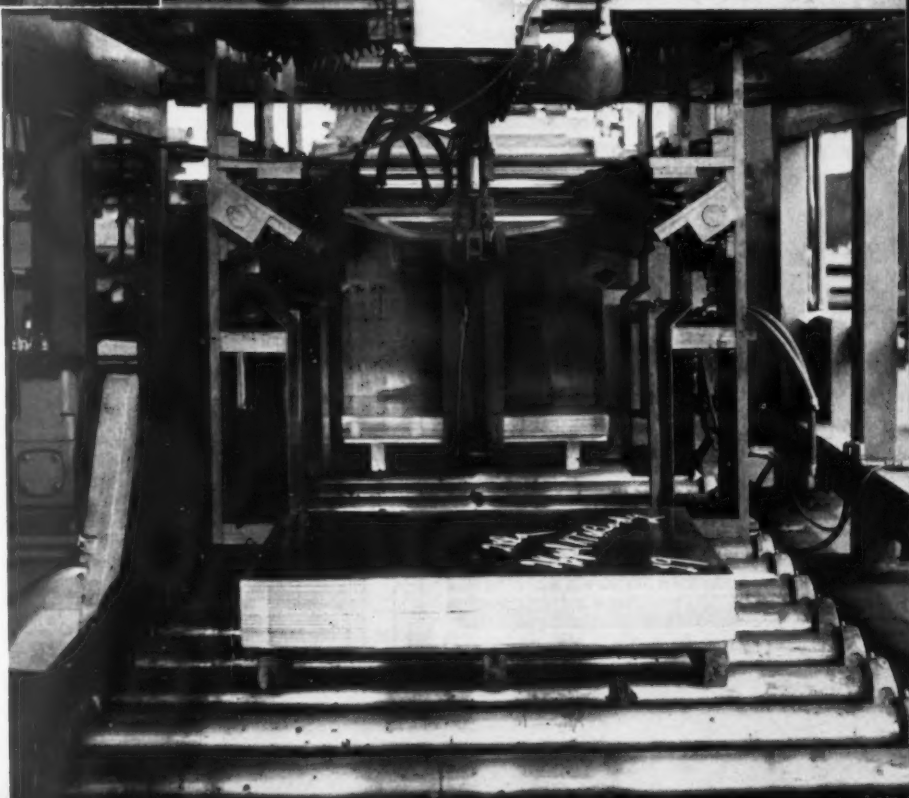
*A second article on GP & F fabricating operations starts on page HL-20.*



As the steel enters the shearing station, it hits a stop which has a mechanical connection to a shear-actuating switch.

MPM PHOTOS

View from exit end of line shows completed stack of sheets on skid (foreground) and a partially completed stack under automatic stacker in background. Arms on either side of skid support sheet for an instant, and then allow it to fall in place on stack.



Operator demonstrates how steel is unloaded through large door directly from cars, using 15,000 lb crane.



## ENGINEERED

*high volume  
production of*

## SHELLS EYELETS STAMPINGS

Produced to  
High-Quality  
Standards

Max. Blank: 6"  
Max. Draw: 4 1/4"

### ENGINEERING ASSISTANCE

Experienced Engineers motivated with cooperative spirit will gladly help you plan, develop and design your required production.

### TOOLING FACILITIES

The tools for your specific production can be built, used, and stored for your future need in the complete tooling department.

### MANUFACTURING

Quality is the pass-word; efficiency, the watchword; economy is the stability-word. Manufacturing at Cly-Del combines experienced planning, experienced people, and the most modern production equipment. Your best bet for volume production is Cly-Del.

### ASK FOR FREE BROCHURE

Next to a personal tour of Cly-Del facilities is the fully-illustrated brochure, which gives a complete insight into each Cly-Del department. Write for your copy now.



**CLY-DEL**

MANUFACTURING COMPANY

13 SHARON ROAD

WATERBURY 20, CONNECTICUT

Circle No. 315 on Reader Service Card.

## Applying "Alodine" by roll coating

coater handles coil at speeds up to 150 fpm

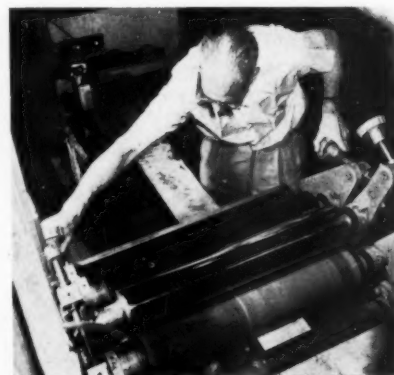
Amchem Products, Inc., Ambler, Pa., has introduced a machine for roll coating Alodine on aluminum coil used for appliances, awnings, siding and other building products. Alodine is the firm's name for the prepaint, corrosion-resistant amorphous chromate conversion coating marketed since 1945.

The coater, designed and built by Amchem, handles aluminum coil up to 24 in. wide at speeds up to 150 fpm. According to Amchem, manufacturers of Alodized aluminum products who already have continuous coil lines can effect considerable reductions in floor space, overall processing time and maintenance costs.

Although the wash and rinse stages remain unchanged, the new roll coating stage is said to save approximately two-thirds of the floor space formerly required for the spray or dip stage, and reduce the time required for treatment with Alodine from 15 to 5 seconds.

Only sufficient quantities of Alodine

to wet the aluminum surface are required. The solution is never re-used, eliminating the need for chemical control of the bath or reactifying equipment to remove contaminants.



Arthur Monson, plant superintendent at Alumaroll, Inc., Rutherford, N. J., adjusts rollers in new roll coating process. Pressure determines amount of solution applied to aluminum.

## How to be the LEADER

In Building Supplementary Heaters for  
Heat Pumps and Window Air Conditioners  
(Both Residential and Commercial)

### Always Be Years-Ahead in Design, Quality and Service

Rugged, efficient TEP Heating Units are used as supplementary heat source for heat pumps or as heat source for forced-air heating equipment. Designed to meet your own specifications, the coils may be used individually or in any combination desired.

### Specify TEP "Open Coil" Heating Elements — FOR LONG SERVICE LIFE AND LOW MAINTENANCE—

- Floating frames that eliminate rigidly welded construction and permit elements "to breathe."
- Exclusive insulator and cross-bar design is an original research development, patented by TEP.

Cross-section of patented TEP insulator and cross-bar. More space for air circulation assures better heat dissipation, longer wire life. Patent No. 2,921,172



**TEP** products

MANUFACTURERS OF OPEN COIL HEATING ELEMENTS, SWITCHES, CONTROLS

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**TUTTLE ELECTRIC PRODUCTS, Inc.**

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## Gaffers & Sattler expands distribution

"The first six months of 1961 are indicative of an improving trend for 1961 as a whole." ..... Herbert S. Leo

THIS REPORT FOLLOWS A VISIT to the offices and display rooms of Gaffers & Sattler on Beverly Boulevard in Los Angeles, Calif.

Our editorial contact was with Herbert S. Leo, executive vice president, and P. L. Chabre, vice president of marketing. Gaffers & Sattler is an important factor on the West Coast in the gas range business, and has more recently entered into the electric built-in field also.

In addition to the Gaffers & Sattler name, the "Mission" and "Utility" identifications appear on some products.

While concentration of business has been in the western half of the United States for this corporation, the company is national in scope and has just opened regional offices in Chicago and Dallas. These new branch offices include warehousing and will be distribution centers for a number of midwestern and southwestern states.

In commenting on the market for built-in ranges, Chabre had this to say: "Approximately one-third of all the gas built-in ranges sold nationally are sold in this California market. This being the largest market for our straight line distribution, we have been able actually to show an increase in built-in sales, contrary to the building picture in the past year. This increase was achieved by the introduction of an all new line of Mark 20 ranges and a more intensive sales effort."

### Newest line — "Instant Built-Ins"

Prominent on the display floor was a new line of products of distinctive design, so we asked Chabre for their background information. Here is his reply.

"Since we have had our showrooms open to the public for the use of dealers and their prospects, we have noticed that the great majority of women visitors show a tremendous interest in built-in ranges. With all of the magazines featuring built-in appliances, this appears to be a natural result. The women start taking dimensional data; then they go home and find that their existing homes don't have appropriate space for built-ins. Then I would assume they start checking on cabinetry and remodeling costs and find that they are faced with a \$2000-\$3000 remodeling job.

"Naturally we don't know what goes on in the home, but it's easy to imagine



MPM photo of Herbert Leo and Pierre Chabre in Leo's Los Angeles office during interview.

that papa, the bread earner, says, 'We'll just forget about it.'

"We approached our engineering department and told them we needed a product that could flow through our appliance channels and sell on the same basis as free-standing ranges, but still have the appearance and styling of built-in equipment. We wanted it so simple it could replace a 40-in. range within the home, where all that would need be done would be to pull out the old appliance. There should be no special cabinetry required.

"The result is our 'Californian' line of ranges which we refer to as our 'In-

TO PAGE 32 →

### THE CALIFORNIAN

"built-in beauty without costly remodeling"



APEC keeps up with the times. Example: we've added extensive bulk handling equipment to provide still greater quality control plus cost saving manufacturing efficiency. Example: we've made substantial additions to warehousing facilities so that ample stocks will be on hand for immediate shipment to our ever increasing list of customers. There are many other examples we could tell about . . . but it all boils down to just this: APEC is the growing source for porcelain enamellers; we continue to add to our staff and facilities so that we can continue to offer the

most thorough, efficient, economical service to users of frit.

## TIMES HAVE CHANGED



...and APEC is changing with the times



**american porcelain enamel company**

1285 KEATING AVE. • MUSKOGEE, MICH.  
PHONE PO 6-4756

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**STERILKOTE\***  
**STRIPPABLE**  
**PLASTISOLS**

# PROTECT

**STAINLESS STEEL, BRASS, POLISHED ALUMINUM,  
PLATED OR PAINTED, COILED OR SHEET METAL**

Newly developed STERILKOTE Strippable vinyl dispersion coatings formulated for roll coat or spray application withstand shearing — slitting — drawing — forming — while protecting metal or painted undersurface. Controlled formulations adhere during fabrication, but strip off easily after final operations.

STERILKOTE Strippable Plastisols are normally applied to a thickness of approximately 2 mils dry film. They will bake at cycles of 1 to 1½ minutes at 500° F. for coil coating, or fuse at conventional bakes of 10 to 15 minutes at 375° F. for sheet coating or spray application. They are available in water-clear, transparent tints, or opaque colors and are easy to apply and economical to use.

Other B-V "custom formulated" chemical coatings furnish protection — decorative enhancement — or a combination of both to your product. For further details write or call direct.

\* STERILKOTE — registered trademark



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## Gaffers & Sattler . . .

→ FROM PAGE 31

stant Built-In line, wherein the range hooks up like any conventional range, and the cabinet and hood are hung on the wall. In addition, there is another cabinet complete with hardware that can be mounted on the left or right, affording a conventional, two-oven built-in range in only 67 in. of space.

"Obviously, in putting this unit in we couldn't try to match hardware in a kitchen, so we went to the other extreme and had custom hardware representing fruit, vegetables, etc., designed which we feel will compliment any kitchen."

Deliveries were started on this new line of products on March 25 of this year. Customer reaction to the new line has been excellent and the sales trend for the new product gives every indication that it will produce a very substantial addition to the company's range sales.

In answer to the comment that all of their oven doors appeared to have windows, we were informed that Gaffers & Sattler make no ranges without built-in windows.

## Utility Appliance Corporation

INASMUCH AS UTILITY APPLIANCE CORP. uses a number of product names, the following explanation will clarify the business setup.

Utility Appliance Corp. is the parent corporation.

Gaffers & Sattler is a trade name acquired in 1946 when Utility purchased the Gaffers & Sattler Co. gas range business. The G & S name was retained as a brand name and is used to identify gas and electric ranges.

Mission Appliance Corp. is a subsidiary of Utility, and manufactures gas and electric water heaters and gas wall heaters, which it markets principally under the Gaffers & Sattler — Mission brand name. Mission also markets under the G & S — Mission brand a complete line of gas-fired forced air furnaces, suspended unit heaters and air conditioners.

In addition to the G & S range line, Utility manufactures and markets under the G & S — Utility brand a complete line of evaporative air coolers, gas-fired forced air furnaces, suspended unit heaters and air conditioners. Utility also markets a line of water heaters under both the Utility brand name and the G & S — Utility brand name, as well as a line of built-in dishwashers under the Gaffers & Sattler name.

Utility Appliance Corp., through its Utility Fan Corp. Division, manufactures and markets an extensive line of centrifugal blowers for commercial and industrial application, which is sold under the Utility brand name.

In building toward a single brand name, virtually all of the Mission and Utility products are today identified as "Gaffers & Sattler — Utility" and "Gaffers & Sattler — Mission."

*NOTE: Shortly before this issue went to press, MPM learned through Utility Appliance Corp. that a transaction had been completed involving the exchange of Utility shares for Republic shares, making Utility a subsidiary of Republic.*



# MPM

## 15TH ANNUAL SPECIAL SECTION

### HOME LAUNDRY APPLIANCE INDUSTRY

**HL-11 COST OF LIVING, AUTOMATIC WASHER PRICES  
MOVE IN OPPOSITE DIRECTIONS**

*price drops make washers one of today's "best buys"*

**HL-15 HOME LAUNDRY: WHERE HAS IT BEEN AND WHERE  
IS IT GOING?**

*an MPM exclusive interview with Judson S. Sayre*

**HL-17 SPOTLIGHT ON SERVICEABILITY**

*manufacturers continue to stress ease of access*

**HL-20 CONTRACT PRODUCTION OF WASHER BASKETS  
FOR AUTOMATICS**

*a step-by-step look at GP & F's fabrication line*

**HL-22 HOME LAUNDRY EQUIPMENT RELIABILITY PUR-  
SUED THROUGH QUALITY CONTROL**

*"quality audit" and "countdown to reliability"*

**HL-27 FLOW COATING GROUND COAT AT GE,  
APPLIANCE PARK**

*variety of parts processed in three-level equipment*

**HL-30 HOME LAUNDRY REVIEW**

*a sampling of new models and improved features*

**HL-37 NEW FROM THE HOME LAUNDRY INDUSTRY SUP-  
PLIERS**

*a rundown on the latest in supplies and components*



# TLC\* dryer control

## is TIMER-less...and TROUBLE-less

### Just set the dryness and FORGET THE TIMER

... because *there is no timer* in Robertshaw's TLC\* dryer control system. And this means *there is no timer* to set, service, adjust or get out of whack!

TLC control *means* TIMER-less control ... TROUBLE-less control ... and tender, loving care for even the daintiest things. Yes ... just set the dryness and forget the timer ... Robertshaw's TLC dryer control does all the rest. Any size load, any fabric and any mix is dried exactly as desired ... and even gently fan-cooled. No more under-drying ... no more over-drying ... and all the problems of timer-type dryer controls are eliminated.

Want more details? Write to Department MP, Robertshaw Thermostat Division, Robertshaw-Fulton Controls Company, Youngwood, Pennsylvania. Canadian Affiliate: Robertshaw-Fulton Controls Company, Limited, Toronto.

VMA 9126



... the name that MEANS temperature control

\*Trade Mark — Robertshaw TIMER-less control system for any dryer  
(available on 1962 dryers)



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## Fiberglas announces new products to keep your appliances cooler and quieter

### NEW! FIBERGLAS\* PANEL DEADENER

A flexible blanket of fine glass fibers. It adheres to metal panels and reduces noisy vibrations. Available in two weights, different thicknesses, and with or without an incombustible facing.

### NEW! FIBERGLAS HEATED APPLIANCE INSULATION

Both a thermal and acoustical insulation. Excellent for use in heated appliances because it has higher temperature resistance. Available with or without a foil facing on one side.

**NEW TEST LABORATORIES AT OWENS-CORNING FIBERGLAS TECHNICAL CENTER NOW IN OPERATION!** Technical Service Engineers are available to help solve your thermal and acoustical problems. Write or call Mr. Frank Hardesty, Owens-Corning Fiberglas Corporation, National Bank Building, Toledo 1, Ohio, for more information and assistance.

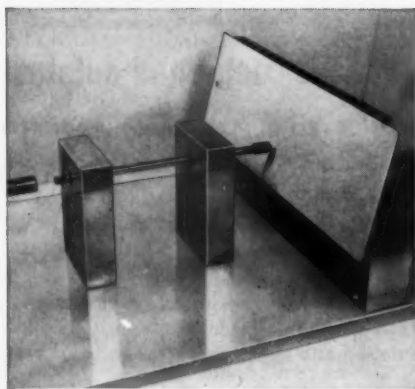
OWENS-CORNING RESEARCH pioneers new ideas in



\*T-M. (Reg. U.S. Pat. Off.) O-C.F. Corp.



# Get lower cost per square foot with high-bake Du Pont **DULUX<sup>®</sup>** Enamel



**CHIP RESISTANCE TEST** in Du Pont laboratories subjects "Dulux" to the blows of a steel plunger activated by a spring. Such quality control tests assure the consistent high performance of "Dulux".

## Extra tough for rugged customer service, too!

With its high solids content, Du Pont "Dulux" assures smooth, high build, even on sharp edges. Result: greater line efficiency—fewer rejects. Leading appliance manufacturers count on "Dulux" for consistently fast, trouble-free operation, whether applied by hot spray, steam spray...or electrostatically. ■ And "Dulux" adds sales appeal, too. It keeps its lustrous good looks . . . resists staining, grease and is easy to clean. Year after year, this rugged finish stands up under rough treatment without chipping or cracking. ■ Get all the facts about "Dulux" Enamel from your Du Pont Representative, or write: E. I. du Pont de Nemours & Co. (Inc.), 2500 Nemours Building, Wilmington 98, Delaware.

## DU PONT INDUSTRIAL FINISHES



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or DECORATIVE...**

**APPLIANCE HARDWARE by NATIONAL LOCK**

DIVERSIFIED MANUFACTURING EXPERIENCE is one big reason why home laundry and other major appliance manufacturers depend on National Lock for superior hardware, fasteners and plastic components . . . including catches, latches, casters, brake casters, leg levelers, continuous hinges, screws, bolts and plastic items. National Lock is a major supplier to more than 40 different O.E.M. markets. Our diversified plant facilities and design-engineering skills stand ready to help you solve your hardware problems. Write us.

***NATIONAL LOCK***

INDUSTRIAL HARDWARE DIVISION • NATIONAL LOCK COMPANY • ROCKFORD, ILLINOIS  
INTERNATIONAL DIVISION • 13 E. 40TH ST., NEW YORK, N. Y. • CABLE: ARLAB  
HINGES • CASTERS • DIE CASTINGS • CATCHES • PLASTIC COMPONENTS • FASTENERS... ALL FROM 1 SOURCE

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why every **HOME LAUNDRY**  
manufacturer should seriously consider . . .

**HOMMEL FRIT**

**1**

Hommel quality frits are engineered from the manufacturer's viewpoint . . . designed to meet his specific product requirements . . . without costly production-line changes.

**2**

Hommel frits are quality-controlled. Every batch must pass the most rigid inspections within the industry. You're assured of the same high performance from every bag.

**3**

A continuous flow of water shatters Hommel water quenched granular frits . . . giving better grinding characteristics and more stable enamel slips.

**4**

Hommel frits mean trouble-free production. Let your local Hommel representative show you the difference.

**THE O. HOMMEL CO.**

PITTSBURGH 30, PA.

West Coast — 4747 E. 49th Street, Los Angeles, California



DEPT. MPM-961

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HL-6

SEPTEMBER • 1961 MPM

## TEAMWORK BEATS SCHEDULE IN MARKETING FIRST CORDLESS DRILL



## DIES DESIGNED AND CASTINGS DELIVERED IN THREE WEEKS BY DOEHLER-JARVIS!

A 'breakthrough' product means a race against time. Get it in production and on the market while it is still "hot" news.

That was the situation Black and Decker faced in developing the first "cordless" electric drill.

A major time factor—the design and construction of dies and the die casting of three major elements of the revolutionary new product.

The question put to Doehler-Jarvis—can you design and build the dies and deliver aluminum castings for the gear case, gear case cover and field case in three weeks?

The answer—we did it!

The first delivery of completed castings was made in three days less than three weeks.

This is *not* a routine situation. But it is an outstanding example of how Doehler-Jarvis' 57 years of leadership in die casting can work to your benefit in all circumstances. It was the design and engineering skill and experience of Doehler-Jarvis, together with their unmatched produc-

tion facilities and know-how which helped Black and Decker meet its ultra-tight production schedule.

But there was more to gain than speed. The die cast parts delivered to Black and Decker have the high strength, impact resistance and abrasion resistance needed to take rough handling; they are sound and dimensionally stable to permit and maintain close tolerance; and their attractive finish adds extra sales value.

You will find it to your advantage to talk to Doehler-Jarvis about die castings for your products. Contact the office nearest you.



### Doehler-Jarvis



Division of National Lead Company • General Offices: Toledo 1, Ohio  
Plants and Sales Offices: Toledo, Ohio; Grand Rapids, Michigan; Pottstown, Pennsylvania; Batavia, New York.  
In Canada: Barber Die Casting Co., Ltd., Hamilton, Ontario.  
In Brazil: Industrias Doehler do Brasil, S. A., Sao Bernardo do Campo, Sao Paulo.  
In Argentina: Doehler Argentina, S. A., Buenos Aires.  
In Great Britain: Metal Castings-Doehler, Ltd., Worcester, England.

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## PORCELAIN ENAMEL BEAUTY

begins BENEATH the SURFACE



### SPRAY PICKLING SYSTEM

(Cycles vary to meet specific requirements.)

OPERATION	TIME	TEMP. F
Hot Alkali Spray Wash	1 min.	180°
Hot Rinse to Sewer	1¼ min.	180°
Hot Recirculated Rinse		
Hot Fresh Water Rinse		
Hot Alkalai Spray Wash	3 min.	180°
Hot Rinse to Sewer	1¼ min.	180°
Hot Recirculated Rinse		
Hot Fresh Water Rinse		
Hot Sulphuric Acid Pickle	5 min.	180° max.
Cold Recirculated Spray Rinse	1 min.	
*Hot Nickle Sulphate Spray Coat	6 min.	180°
Cold Recirculated Spray Rinse	1 min.	180°
Hot Neutralizing Spray	1½ min.	180°
Hot Neutralizing Spray	1½ min.	180°
Hot Blast Dry	4 min.	300°

\*Metalwash U.S. Pat. 2570299

The gleaming surface beauty of today's porcelain enameled appliances is more than skin deep. It begins beneath the surface — with scientific cleaning, pickling and nickle coating of the metal to remove every possible cause of blemish and rejection.

Metalwash originated and perfected continuous, automatic spray pickling for the appliance industry. Metalwash automatic spray pickling systems, each engineered to the specific need of the appliance manufacturer, are in use in more than a dozen great assembly lines.\* More are being built on order for leading U. S. and Canadian manufacturers who recognize the superior, lower-cost performance of Metalwash machines.

**It's the shining enamel surface that clinches the appliance sale—and the sale begins beneath the surface with Metalwash!**

\*Metalwash experience and engineering skill can improve your enamel surfaced product. We'll be happy to tell you how and to show you Metalwash spray pickling systems in actual operation. Write today for sample plans and specifications.

INDUSTRIAL DIVISION



**Metalwash**  
MACHINERY CORPORATION  
Established 1912

900 North Avenue Elizabeth 4, New Jersey



Metalwash  
spray pickling system  
cleaning and pickling



Metalwash  
spray pickling system  
cleaning and pickling



Metalwash  
spray pickling system  
cleaning and pickling



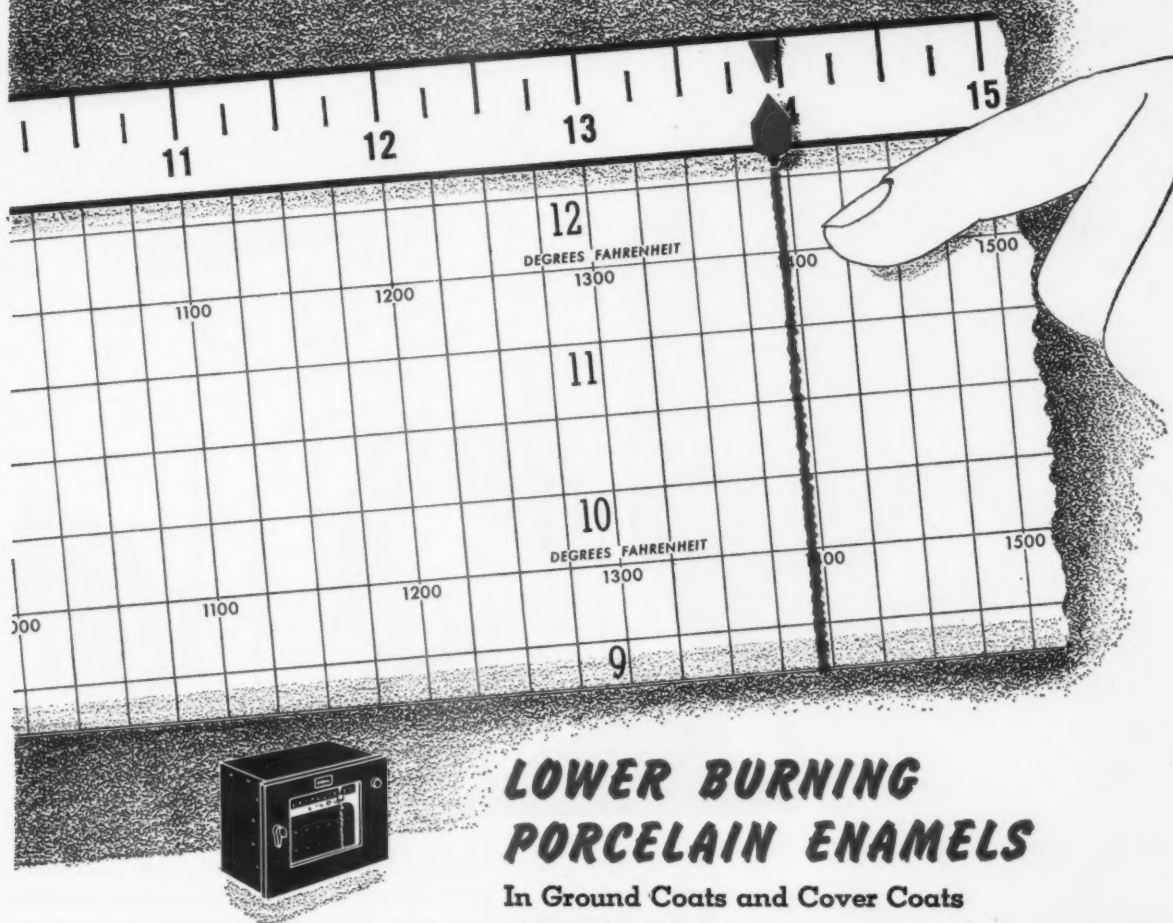
Metalwash  
spray pickling system  
cleaning and pickling



Metalwash  
spray pickling system  
cleaning and pickling

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# here's proof...



## LOWER BURNING PORCELAIN ENAMELS

In Ground Coats and Cover Coats  
Both adaptable to color...

with NO SACRIFICE in QUALITY

Pioneer Producer of  
LIFETIME  
Porcelain Enamel Products



Would you be interested in definite proof that we have whipped this important enameling problem?

We can bring you definite proof... the success story of FRIT formulations developed and PROVEN by our top flight ceramic engineers working hand in hand with practical technicians.

Again—Ing-Rich scientific *and* practical KNOW-HOW has proven its high value to our Frit customers.

**INGRAM-RICHARDSON, INC.**

OFFICES, LABORATORY AND PLANT, FRANKFORT, INDIANA

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# Her Eyes Are Open

So let her see...with glass by **MARSCO**



At the coin-op laundry or at home, Mrs. Home Laundress uses those eyes of hers. They are continually checking the progress of her washing or drying operation. What more logical design features for home or commercial equipment . . . washer or dryer . . . than MARSCO'S PORTA-VUE and MARSCO'S CONTROL VUE.

Design your equipment with MARSCO'S PORTA-VUE window and MARSCO'S CONTROL-VUE backguard glass . . . twin "Vues" she'll appreciate.

#### SOME OF MARSCO'S HEAT-TREATED, TEMPERED AND HARDENED GLASS PARTS:

- CLOCK & TIMER CRYSTALS
- OVEN DOOR WINDOWS
- LIGHT LENSES
- WASHING MACHINES
- INSTRUMENTS
- SHELIVING
- ROTISSERIES
- DRYERS
- DIALS AND NAME PLATES
- TELEVISION EQUIPMENT
- PHOTOGRAPHIC EQUIPMENT
- WATER HEATER PEEP SIGHTS

Special Shapes for: Instruments, Gauges, Household and Industrial Appliances.



Bent Glass



Convex Glass



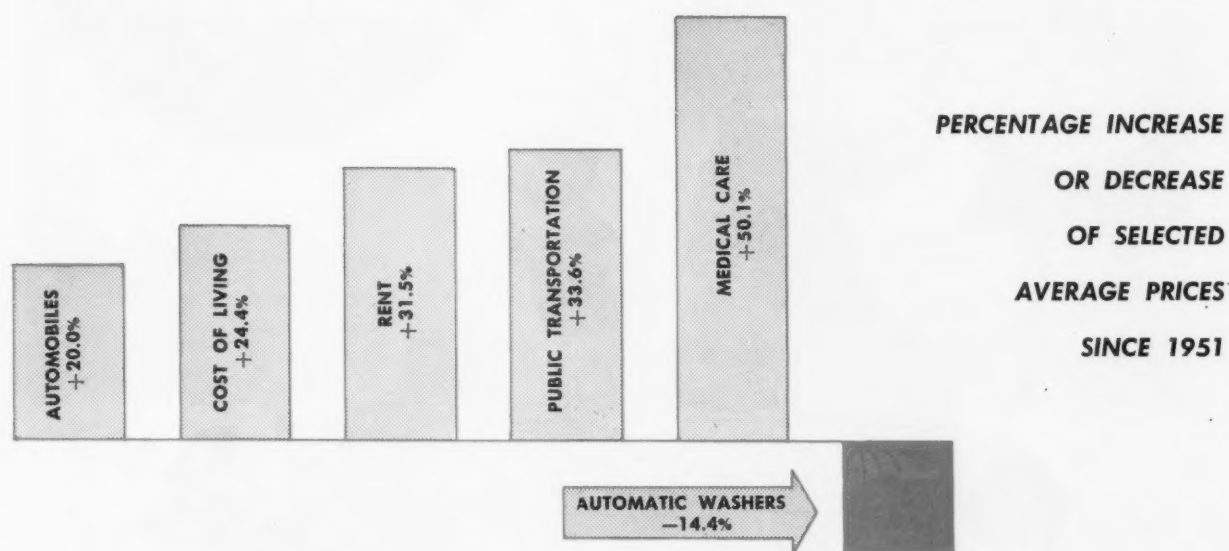
Heat-treated Glass

**MARSCO MFG. CO., 2901 S. HALSTED ST., CHICAGO 8, ILL.**

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## Cost of living, automatic washer prices move in opposite directions



**W**HAT IS THE BIGGEST dollar-for-dollar bargain on the current American market? In view of an overall cost of living increase—24.4 percent in the past 10 years—the automatic washer ranks high on the “best buy” list.

In this same 10-year period, according to figures furnished by the American Home Laundry Manufacturers Association, the average price of automatic washers has *dropped* 14.4 percent. A comparison with a few other price trends makes this decrease more startling: the cost of public transportation has jumped 33.6 percent since 1951; rent is up 31.5 percent; and medical care has soared 50.1 percent over 1951 costs.

In measuring these percentage changes in dollars, this means that an automatic washer that sold for \$300 in 1951 today sells for \$256.80. By contrast, a \$10,000 house today brings \$12,000, and a \$2000 car now costs \$2400.

In spite of the lower price paid for today's automatic washer, the consumer is getting an appliance of far greater versatility. In 1951, for example, one noted

manufacturer's top automatic washer offered *one* cycle, *one* speed and *two* water temperatures. A current model selling for approximately 10 percent less offers *two* cycles, *two* speeds and *five* water temperatures, in addition to lint filter, suds saver and increased clothes capacity.

Also, today's washers add detergent, bleach and rinse conditioners automatically and at the right time to insure best results.

Not to be overlooked on the plus side of the 1961 units are updated styling and emphasis on decor. Automatic washers come in a multitude of colors that harmonize with any color scheme of laundry room, kitchen, bath, or any other place a homemaker may choose for installation.

Even the space problem has been eliminated for homemakers who do not have room for both an automatic washer and dryer. For them, one of the combination washer-dryers which range in width from 25 $\frac{3}{8}$  in. to 36 in. would answer most space requirements. Some

1961 models rival their separate counterparts in nearly every feature, and may be installed in kitchen, bathroom or laundry area.

While the purchasers of 1961 automatic washers are obviously getting more for their money, it is debatable whether the manufacturers can afford further price reductions. For various reasons, the modern consumer is extremely price conscious. But if price levels continue to sink, it will become even more difficult for producers of home laundry equipment to earn a fair profit.

The pricing situation is complex and defies any simple analysis. There are some who believe that if prices were reduced still further, increased sales and higher total profits would result. Dissenters to this theory contend that prices have already hit rock bottom, and that the prospect of ever-increasing production costs should rule out consideration of further price reductions. Under current circumstances, this position seems to be the most logical. MPM

"Don't worry, ma'am...  
it's coated with  
**ACROPON®**"

It's not the first time this new washer and dryer have been threatened with rough treatment. They've been man-handled from the time they came off the assembly line.

But tough ACROPON kept them safe from scratches, chips and scuffs then... and will continue to protect them for years to come.

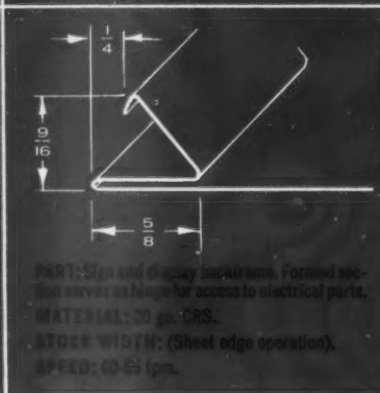
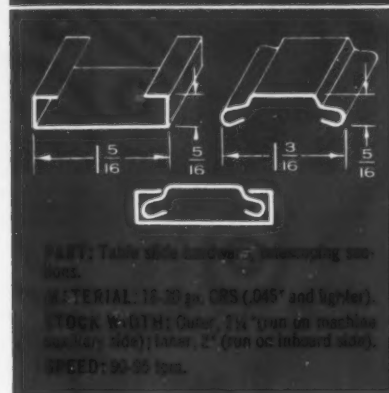
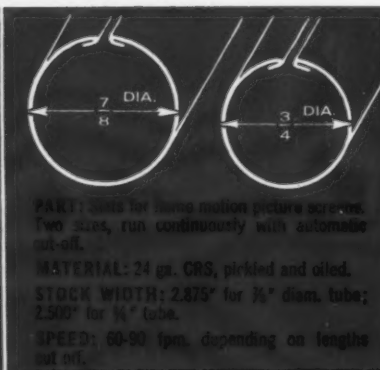
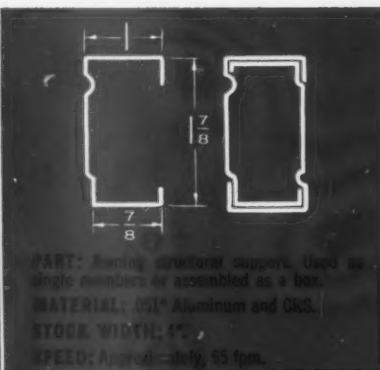
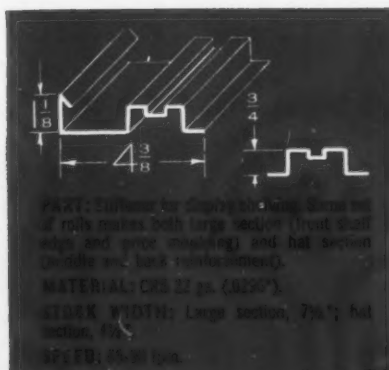
ACROPON finish by DeSoto—the outstanding thermosetting acrylic—brings lasting beauty to any appliance. Minimizes freight handling claims because rough handling can't hurt it.

Ask our field engineers to show you how ACROPON outperforms, outlasts any other finish.

**DeSoto Chemical Coatings, Inc.**

1350 S. Kostner Ave., Chicago 23, Ill.

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## 5 More Manufacturers Discover How TO MAKE IT AT LESS COST with **LOCKFORMER** Roll Forming Equipment

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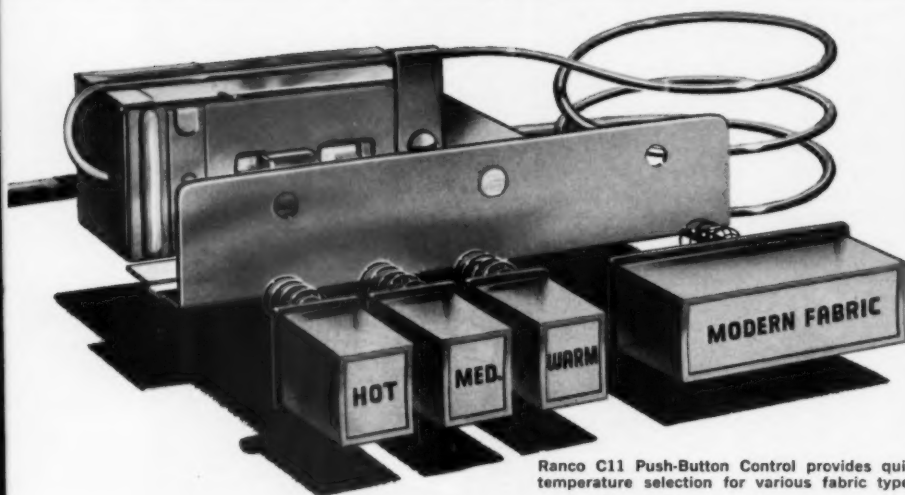
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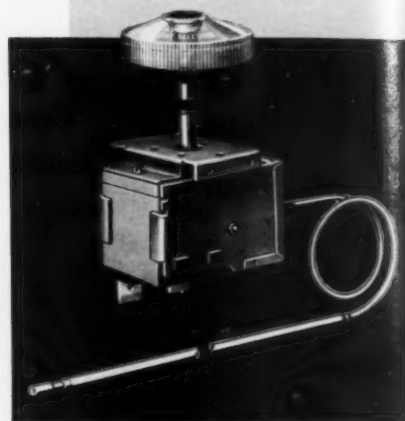
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# RANCO DRYER CONTROLS



Ranco C11 Push-Button Control provides quick temperature selection for various fabric types.



Ranco C11 Dial-Shaft Control accommodates dial knob with indicated positions for drying various fabrics.

## C11 TEMPERATURE CYCLING CONTROL

You design the dryer—Ranco designs the control. This formula has been proven with millions of Ranco controls in operation. The Ranco C11 Control (push-button or dial-shaft) is one basic type adaptable to your appliance designs.

• Coordinates with Ranco T20 Se-

quence Control (below) using either dial or push-button temperature cycling control.

• Available with one or two auxiliary switches to manually control additional circuits with the dial.

• Mounting bracket has multiple holes for side or flush mounting. Specially

designed brackets can be produced.

• Electrical rating (listed and approved) is 25 amps, 250 volts a.c. resistive rating, and 125 volt-amperes pilot duty at 125 volts a.c. inductive rating.

• Bright zinc plating with Iridite treated exterior finish.

## T20 SEQUENCE CONTROL

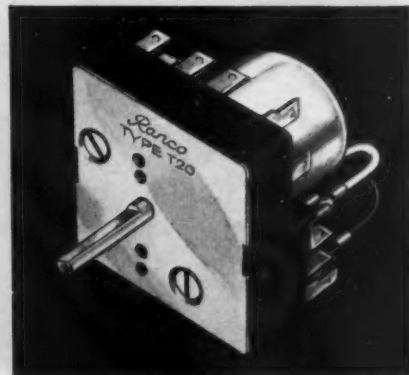
Control switch and timer motor in a compact, enclosed unit are designed to work with the C11 (above) to operate from one to a maximum of 4 circuits in various combinations, the two major circuits and two auxiliary circuits to provide the flexibility your dryer requires.

• Switch operates in ambients from 35° to 150°F. Dust and lint-proof enclosure. Two-way clutch.

• Cams adjustable for one or multiple timed sequences. Quick-break of major circuit contacts, quick-connect plus screw type on major terminals

and only quick-connect for auxiliary terminals. Maximum electrical ratings. Major circuits: 25 amps, 115 and 230 volts resistive load and ½ hp., 115 and 230 volts. Auxiliary circuits: 15 amps, 115 and 230 volts resistive load.

• 4-pole, synchronous motor is self-contained, 2.5 watt, hysteresis type, 1,800 rpm rotor speed at 60 cycles. Quiet operating nylon gears and pinions require no lubrication. Dial speeds possible to one revolution in 12 minutes. Clockwise or counterclockwise rotation. 25, 50 and 60 cycles, at 115 volts; 50 and 60 cycles at 230 volts. Automatic disconnect on completion of any timer cycle.



Ranco T20 Sequence Control provides smooth, quiet, operation; quick, clean contact breaks; multiple-circuit for sequence flexibility; mounts in any position.

### Typical Dryer Sequence Arrangements



Single Sequence with Timer Selector: Operator selects total drying time. Heater shuts off before drum.



Other Selective Sequences: (User selects the operating temperature of dryer, manually starting each sequence after "Off.") With drum motor on and heater on, these two arrangements are possible: (1) Successively lower temperatures are reached, with control on continuously; clothes are less hot at end of sequences; (2) Control can run continuously or intermittently for different temperature at different sequences. One sequence can have timer motor run continuously with drum motor on and heater off for fluffing or sprinkling operation.



For specific information on how the new Ranco C11 Control and T20 Control can be adapted to your drying needs, write:

**Ranco**  
INCORPORATED  
COLUMBUS 1, OHIO

In Canada: Ranco Controls, Canada, Ltd., Toronto 18, Ontario

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More Than 125,000,000 Ranco Controls Proven In Use

# Home laundry: where has it been and where is it going?

AN MPM EXCLUSIVE INTERVIEW WITH  
JUDSON S. SAYRE, NORGE BOARD CHAIRMAN

**MPM:** What made the automatic washer the great profit-maker it has been for the appliance industry?

**SAYRE:** The automatic washer banished the work of home laundering, eliminated a laborious chore, and satisfied a need. In 1941, when the industry was struggling for existence, this one basic fact enabled dealers to achieve a percent gross twice that of the wringer washer.

**MPM:** What is the reason for the decline in sales of this appliance over the past two-three years?

**SAYRE:** There is no doubt that one major reason for declining washer sales is the housewife's concern about service time and costs. The average housewife is plain disgusted with service calls. I've been saying this for five years — the guy who licks the service problem is going to end up on top in this industry.

**MPM:** How can the industry combat the automatic washer sales slump?

**SAYRE:** Aside from the service problem, there's no secret about what we must do from a sales angle. We must advertise, display, demonstrate, and close. If given one choice of which of the four is most important to automatic washer selling, I would select "demonstrate." For 25 years now I have seen "going rates" jump off the sales charts when enough people are sitting customers in front of washers and simply describing what the washer will do. If more manufacturers concentrated on more demonstrations of the appliance and less on how to cut prices, the washer sales problems would evaporate.

**MPM:** Reuben E. Slesinger, professor of economics, University of Pittsburgh, is quoted as saying that it may be several years before there is a revival in appliance sales and, additionally, that the "hope and challenge appears to be in reducing the prices . . ."

**SAYRE:** I have respect for Professor Slesinger's opinion but disagree flatly with his basic premise. We started selling automatic washers back in 1937 for at least \$169.95 in opposition to a wringer model that was a drug on the market at a \$99 price. We built the automatic home laundry and appliance business on hope and trust and optimistic salesmanship. And we do not intend to bury it behind a depressed feeling that it will slump for several years.

**MPM:** If, as the industry seems to agree, current price levels are too low to provide a reasonable return to the manufacturer, what is necessary to bring these prices to a realistic level?

**SAYRE:** To illustrate this point, I like the story about the woman who went to the Farmers' Market to buy a sack of



potatoes. The first farmer's wagon she went to had the potato bags piled on dirt and straw and the bag that was open had good, large potatoes, but they were dirty. She asked the price. The farmer said: "Ma'am, you know potatoes is up, our crop wasn't as good as expected, but these are fine potatoes from special seed — the price is \$2.75 a bag." The woman was outraged by the high price and went to the next farmer's wagon.

This farmer's wagon was clean and spotless. He had a bag of clean potatoes opened. He said: "Ma'am, these potatoes are grown from the finest seed. We cultivate and raise them carefully. We hand-pick the potatoes we offer for sale. Then we wash them clean before putting them in the bag. You will notice that half of these potatoes are large, for baking, and the other half are smaller, for cooking. You won't find better potatoes than these in the fanciest store. The price is \$3.00 per bag."

The woman bought two bags. I ask you again: "Must it always be price?" The answer is yes if all you can talk about is price.

## Judson S. Sayre

An association with the home appliance industry that spans 36 years began in 1925 when Jud Sayre joined Kelvinator Corp. as a salesman. When he left the firm eight years later he had ascended through the ranks to become national sales manager.

The drive and aggressiveness that was responsible for this rapid progress at Kelvinator has characterized Sayre's subsequent career in the appliance industry — a career that has brought him to his present position as chairman of the board and chief executive officer of Norge Div., Borg-Warner Corp.

What qualifies Sayre to speak with authority on this subject of automatic washers? He was vice president of Bendix Home Appliances in 1937 when the nation's first automatic washers were sold. At Bendix he became known as "the father of the automatic washer." He has been described by Time as one who "probably did more than any other man to promote the automatic washer" as Bendix president from 1941 to 1950.

After his early Kelvinator experience, Sayre joined Montgomery Ward as head of its appliance division, and in two years had engineered a \$900,000 division loss into a profit of the same amount.

Sayre was born January 9, 1899, in Meadville, Pa., and grew up in Cynet, Ohio. He graduated from Ohio Wesleyan University and earned a master's degree in business administration at Columbia University.

He joined the Norge organization in May, 1954 as president and was named to his present top post in February, 1960.

Sayre credits his outstanding career in the appliance industry to hard work and a desire to keep moving ahead: "When you begin to be satisfied you start to stagnate."

here's another **FIRST** from **chicago vit**



## **AUTOMATIC FLOW COAT EQUIPMENT**

**for the Home Laundry Industry**

Chicago Vit **LEADERSHIP** first brought you **ALKALI RESISTANT GROUND COATS . . .**  
first brought you **STEAM VAPOR RESISTANT GROUND COATS . . .** first brought you  
**ALKALI RESISTANT TITANIUM COVER COATS . . .** Now brings you **AUTOMATIC FLOW  
COAT EQUIPMENT**—exclusively engineered and manufactured by Chicago Vitreous.

Ask your Chicago Vitreous representative to discuss the uniform quality and other production  
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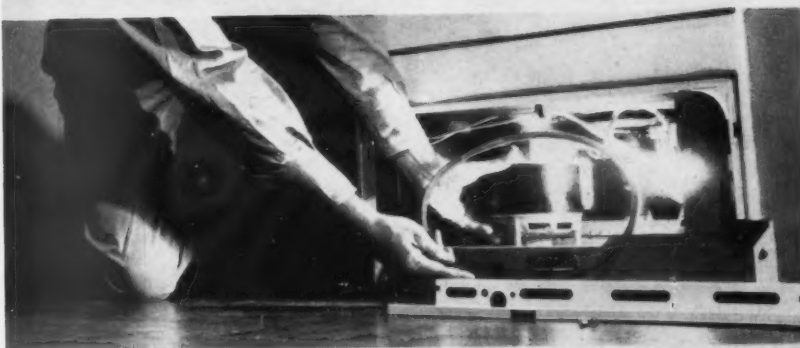
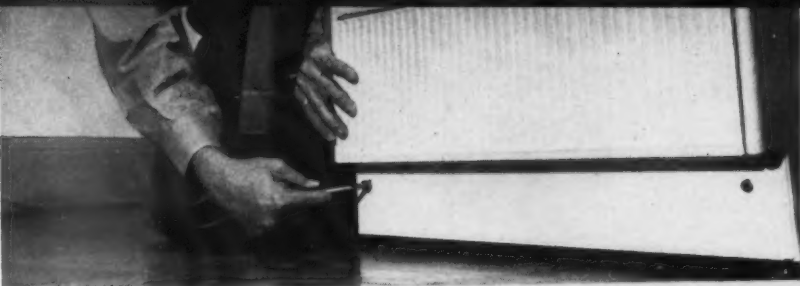
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With a screwdriver and a knife, the appliance serviceman can remove the backguard of the Norge washer, raise the top, remove the front panel and lift out the tub. This is accomplished without pulling the washer from the wall.



The front panel of Norge automatic washers slips out when two screws are removed (top photo). Serviceman then has complete access to new double-pivot motor, pump, belt (middle photo), brake latch, limit switch, hose connections and automatic belt tensioner. Motor can then be removed from the washer (bottom photo) without use of tools.

**manufacturers continue to stress ease of service in new home laundry equipment**

## Spotlight on serviceability

**M**OST MANUFACTURERS are frank about it — appliance servicing in past years has been a major headache to the industry. The majority of these companies will also admit that home laundry equipment ranked close to the top, if not at the top, of the list of appliances experiencing service "difficulties."

Any reader who followed MPM's extensive series dealing with service is aware that the problem does not lend itself to simple diagnosis or magic solutions.

The "problem" takes many forms. To some, poor service means high cost; others become disgruntled because of a frequent necessity for service; service calls that result in new problems rather than efficient service have plagued some consumers; and dissatisfaction with the operation of certain warranties has also been noted.

And where does the responsibility lie? Ultimate responsibility must necessarily

be the burden of the manufacturer, although there are many others involved. The manufacturer has the basic job of designing and building appliances that will require a minimum of service. Beyond this point, others take over. Dealers, servicemen and even the customer play major roles in the service picture, and each contributes to its success or failure.

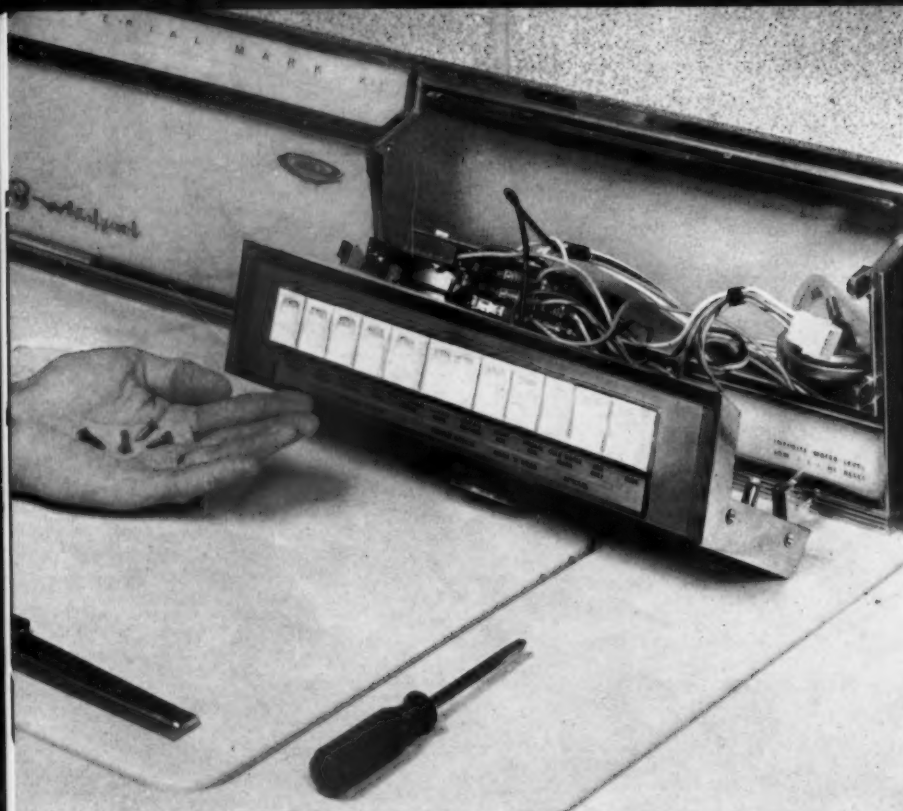
But the manufacturers know that a great deal can be done at their level to increase the likelihood of satisfactory service. And recently, a great deal is being done.

Service accessibility of a home laundry appliance is only one facet of the service picture, but its importance has been clearly established. Only two years ago an impressive demonstration by E.

O. George, vice president of The Detroit Edison Co., showed members of the industry what had been done and what remained to be done to improve the serviceability of home laundry equipment.

George, appearing on the program of a meeting sponsored by the Major Appliance Div. of the National Electrical Manufacturers Association, used current appliances to show what some manufacturers had done to simplify service. He also struggled with other models to demonstrate what needed to be done. George made it clear that many opportunities for improvement in this area existed.

Fortunately, a substantial amount of progress has been made toward improving the serviceability of home laundry equipment. Some companies have done more than others in this respect, but the



examples described here are merely representative of the industry-wide recognition of this subject.

#### Westinghouse

A picture story in the March 1961 issue of MPM described how Westinghouse automatic washers "honored"

servicemen by simplifying service access. The article showed how the control panel could be removed by taking out five screws. This allowed the serviceman to place the panel on top of the machine with all wires and control knobs in place.

Also, the top panel was easily removed

by loosening two screws; to service such components as the pump or motor, the lower front panel could easily be removed, and the sloping front panel could be detached to give complete access.

#### Norge "Service-Simple"

Accessibility for service is getting top billing in Norge's recently introduced line of 1962 automatic washers.

According to the company, the new design is the result of a four-year survey which showed that "American consumers are demanding less frequent, more efficient, and less-expensive service."

The company is attempting to meet these demands with a washer that is designed to cut service time by 33 percent. The washers permit complete access without being pulled away from the wall. In addition, the machines incorporate a new-type motor mount — "the washer part which, together with components and pump, represents 34 percent of all service calls."

A screwdriver and a knife are the only tools necessary to "break down" the Norge unit for service. The entire front panel is removed by taking out three screws from the top of the backguard and removing the control knob. This provides complete access to the fluorescent lamp, switches, wiring harness, water receptacle and dispenser.

Two top lid locks are released by inserting a knife blade between the top and cabinet. This provides complete access to the tub, transmission, tub gasket and boot, snubber assembly, seals, water pressure switch, safety spin switch, door hinge, water inlet flume and hose, and water valve.

For total front service, two screws are removed from the toe plate and the washer front panel slips out. This exposes the motor, pump, belt, brake latch, limit switch, hose connections and automatic belt tensioner.

The new double-pivot motor is equipped with a mount that automatically adjusts belt tensions and motor load for every load requirement. The rubber and nylon brushings fit in two grooves so that the motor pivots to one side for agitation and the opposite side for spin. This automatically adjusts belt tension and motor load each time. Belt adjustments are eliminated and vibration is reduced.

As far as serviceability is concerned, the serviceman can remove the motor from the unit with nothing more than his bare hands. With the double-pivot motor development, Norge expects 54 percent (548 per thousand units) fewer service calls than the national average.

Norge is also providing an electronic



(Above) — Removal of four screws provides access to controls of Whirlpool's 1962 Mark XII and Imperial model washers and matching gas and electric dryers. On the washers, the hinged top swings back for access to the major service areas. Gear case, clutch and spin tub are serviced from bottom without removing any panels.

(Left) — Screwdriver is only tool needed for service access to the top and front of Whirlpool's new top-line model electric and gas dryers. Panels come off by removing only four screws. On the gas dryers, access to burner requires only the removal of a spring-clip mounted front toe panel, uncoupling the burner valve and removing two screws. Entire burner unit then slides out of dryer.

analyzer to facilitate service. With the analyzer, parts and performance can be checked simply by plugging into the receptacle provided in the washer. The analyzer is expected to eliminate the expense of faulty service diagnosis.

#### Whirlpool — 14 improvements

Whirlpool claims 14 improvements to increase serviceability and quality of its new line of washers and dryers.

Two of these improvements, according to company engineers, have completely eliminated some previous servicing requirements. One is a molded dryer blower housing having a highly polished new shape which reduces air resistance and resulting noise. The molded characteristics of the housing are said to reduce the transfer of noise to the metal cabinet. To dampen the sound further, a new round stretch belt is used which eliminates an idler pulley, thus a reduction in the number of working parts and elimination of a servicing requirement.

A second example is in water drainage. A jump device conceived originally to silence water gurgling was found, through subsequent tests, to do a better job of preventing clogging by pins, nails and other foreign matter than by previous methods.

Significant among other improvements are:

- Longer life and fewer service requirements for washer pumps, a result of an improved divider inside the pumps that eliminates electrolytic action.
- Easy service access to the control systems by removing four screws.
- Easy access to the inner components of both washers and dryers. On dryers, top, front and back panels are removed by use of only a screwdriver. Servicing the burner on gas dryers requires only removing a front toe panel, secured in position by spring clips, shutting off the valve, disjoining the valve and removing two screws. On washers, under-cabinet access is by swinging back the hinged top (without the use of tools), or by removing the back panel with a screwdriver.

#### Frigidaire analyzer

An electronic analyzer which, it is predicted, will cut service diagnosis time for clothes dryers by about 60 percent has been developed by Frigidaire.

E. E. Landis, national service manager, said the new equipment is similar in design to an automatic washer analyzer introduced last year. The new procedure for quickly diagnosing troubles is made possible by specially designed cabinets on the washer and dryer. The top and control panels may quickly be removed

(Right)—Switch to a round stretch belt for air circulating fan in Whirlpool dryers led to the elimination of an idler pulley previously required to drive fan. This did away with parts and a previous servicing requirement. Belt is taut and highly flexible. Note how belt vibrates after being "strummed."

(Below) — New electronic analyzer which cuts service diagnosis time for Frigidaire's 1962 clothes dryers by about 60 percent is demonstrated by E. E. Landis, the company's national service manager.



without moving cabinet from the wall.

All electrical connections between the control panel and the unit are channeled into a multipole plug which may readily be uncoupled, thereby permitting the timer and the switches to be serviced at a more convenient location if desired.

Designed to be plugged into this con-

ductor, the new test meters have channels for checking the operation of all controls as well as all electrical circuits and operations of the mechanism. By centering the electrical circuitry into this unit, it is possible for the serviceman to detect the location of service problems almost instantly.

MPM







First step in the fabrication of automatic washer baskets or "splash tubs" is the forming of the sheet in pyramid roll.

## Contract production of washer baskets for automatics

a step-by-step look at  
**Geuder, Paeschke & Frey's**  
fabrication line

MPM PHOTOS

**A**N IMPORTANT PHASE of the contract stamping business of Geuder, Paeschke & Frey Co., Milwaukee, is the fabrication of washer baskets ("splash tubs") for automatic washers.

The baskets, which are porcelain enameled following fabrication, are made of 18-gage steel, and measure approximately 25 in. in diameter, and approximately 20 $\frac{3}{4}$  in. deep.

The operation begins with blanked sheets measuring 74 by 20 in. The sheets are hand fed into a pyramid roll that forms the sheet to an approximate circle. The trueness of the circle is not critical at this point, for a later operation expands the tub body to its exact diameter.

Normally, the next step would be to tack weld the joint to prevent spreading of the seam during seam welding, but a special clamping device on the firm's 150 kv seam welder prevents the edges from shifting during the seam welding.

Following welding, the tub is transferred to an expander, where the diameter is expanded to 25 in. at the widest point, tapering down to a diameter of 23 $\frac{1}{2}$  at the neck.

From the expander, the part is transferred by gravity conveyor to a spot welding station where the bottom of the tub is tacked to the body. Both parts are clamped securely in place, and 12 spot welds are made around the circumference of the joint.

The assembly is then placed in a circumferential seam welder, where the basket bottom is seam welded to the body. Duplicate spot welders and cir-

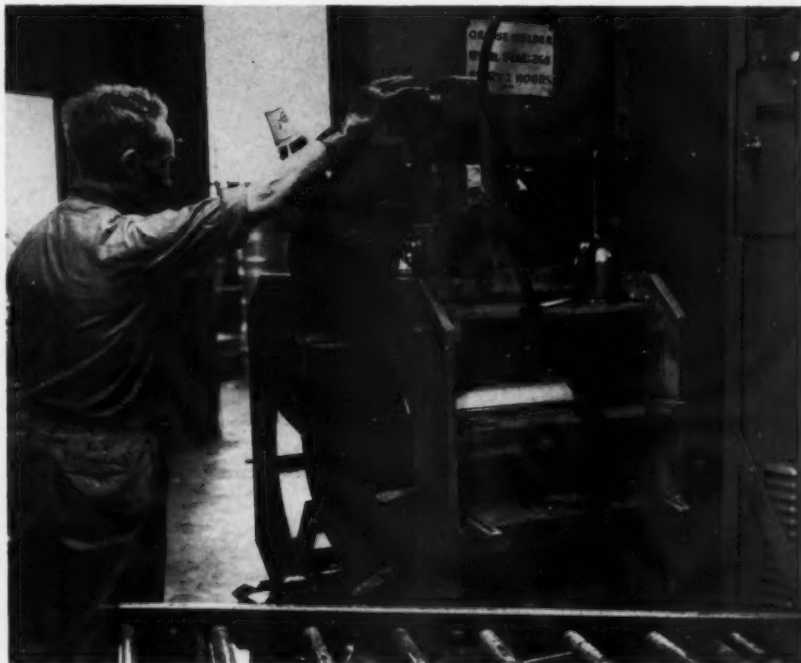
cumferential welders are utilized during peak production periods.

After the circumferential seam weld is completed, the tub is placed on a fixture and rotated at a high speed while a stationary cutter trims approximately  $\frac{1}{4}$  in. of stock to produce a uniform finished height.

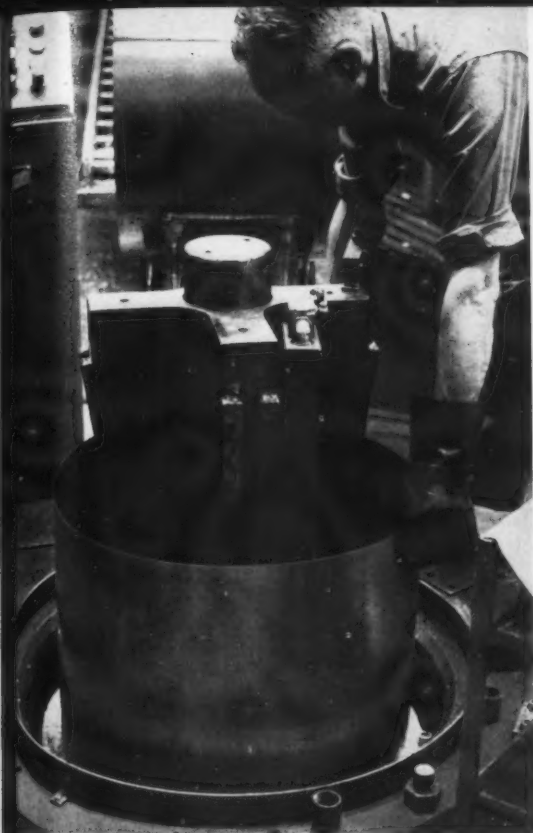
Finally, overflow holes and other body holes are pierced on two punch presses.

Every basket is then inspected to make certain all joints are leakproof. The joints are coated with a soap solution and a stream of air is directed on the inside of the tub. Any faulty joints are indicated by bubbles on the outside of the joint.

The baskets are then ready for pickling and finishing in GP&F's porcelain enameling plant. \_\_\_\_\_MPM



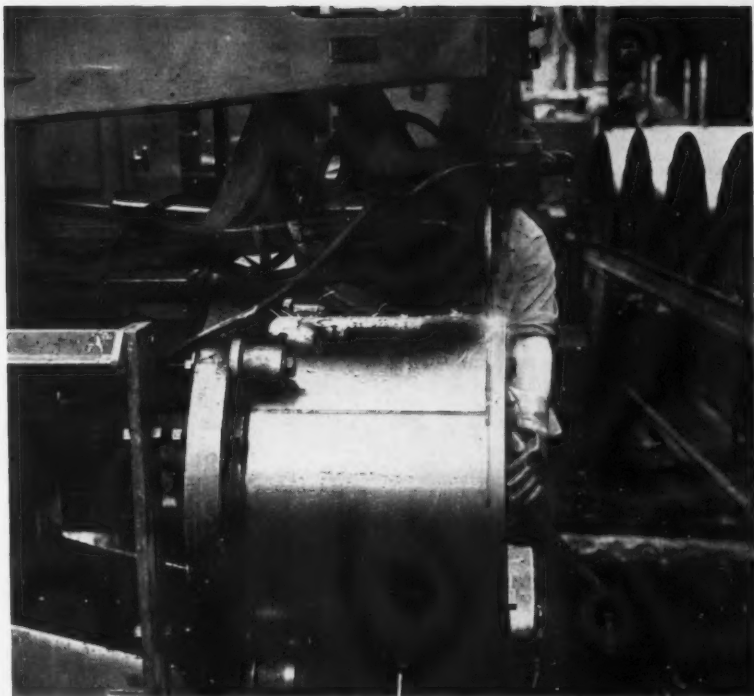
Formed sheet is placed in resistance seam welder where special clamps prevent the edges from spreading during welding. The clamps make tack welding unnecessary.



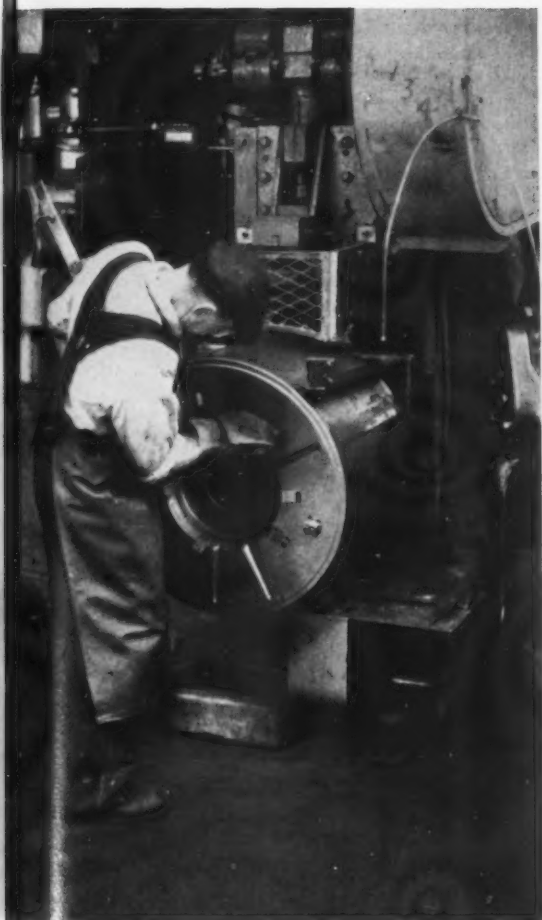
(Left) — Operator lowers tub into expander. Here the diameter of the body is expanded to 25 in. at the widest point, tapering down to a diameter of 23½ in. at the neck.



(Right) — Tub body and bottom are clamped in spot welding fixture and the bottom is tacked to the tub at 12 points around the circumference.



(Above) — Tack welded assembly is placed in circumferential seam welder, and the bottom is welded to the tub body.



(Right) — Approximately ¼ in. of stock is removed from the top edge of the tub to produce a uniform height. As tub is spun at high speed, stationary cutter does trimming.



(Left) — Final fabrication operation is the punching of overflow holes and other body holes on two punch presses.

# Home laundry equipment reliability pursued through quality control

**P**ERHAPS no word in the English language has received more attention in the major appliance business recently than the word *reliability*. It is a word which delights people and scares them at the same time. It delights them because it connotes trustworthiness, dependability, good quality and a host of other nice virtues. It scares them because it recognizes that all of the appliances we build are not 100 percent perfect and nobody likes to admit to imperfection.

"However . . . we must roll up our sleeves, admit our imperfections and talk very frankly with each other if we are going to make any strides forward in improving the reliability of our products."

These words, spoken by R. L. Heckman of GE's Appliance Control Dept., at the 1961 AIEE Appliance Technical Conference, reflect the stepped-up awareness of appliance reliability.

This feeling was echoed in an editor's note in the April 1961 issue of MPM. The note said, in part: "Reliability is a term that we will be hearing a great deal more about in the months and years to come throughout the appliance and fabricated metal products industry. In fact, much of the appliance industry, as far as the consuming public is concerned, could hinge on this word."

The home laundry industry, often criticised in the past for alleged unreliability of its products, has taken substantial steps to achieve the highest possible reliability factors.

Appliance reliability hinges on several factors, including original design, dependable purchased components, and production techniques. Also of high importance is a thorough, uncompromising quality control program.

Typical of the work being done in the quality control area of home laundry equipment production are programs in operation at General Electric and Frigidaire. Another example, described in a three-page feature of the March 1961 issue of MPM, is represented by the process control, factory engineering test and product testing laboratories at Maytag.

Important in this respect is Maytag's factory engineering test laboratory in

which life-testing of home laundry equipment and components, and the investigation of components involved in excessive field failures are conducted.

## GE production line Quality Audit

A recently completed Quality Audit Laboratory is located adjacent to assembly lines in General Electric's Home Laundry Department, Appliance Park, Louisville.

The facility, used to minutely examine random samples of daily production, complements an extensive laboratory program and regular production line checks.

The principal purpose of the test laboratory is to locate any possible defects in day-to-day production that could cause the user problems when the unit has been placed in her home. To accomplish this, a washer, dryer, and combination washer-dryer are taken at random from assembly lines at one-hour intervals.

Some of these production units are put into continuous operation for about

two weeks — or about the equivalent of a year's use in the home. Performance of the appliances during these accelerated tests is recorded automatically, which enables scrutiny of the products on an around-the-clock basis.

Other tests include a check to be certain that the appliance does not exceed its maximum vibration limits, and sound tests in specially constructed booths to determine whether the machine is operating at the desired sound level.

The dryer test area is separated from the other areas of the laboratory by a glass partition. The dryers are operated under high humidity conditions that put the machines to a severe test.

Any defects noted in any of the home laundry units are immediately called to the attention of production supervision. If necessary, employees are brought into the laboratory and specific production points are discussed. MPM

*Turn to page HL-24 for the photo story of Frigidaire's "count down to reliability."*

An assembly line foreman (right) and an employee under his supervision are being shown a production deficiency noted in the laboratory; they must now take immediate corrective steps.







Checking vibration characteristics of an assembly line unit with an instrument similar to stethoscope.

In a specially designed booth that kills outside noise, a technician determines the combination washer-dryer's sound level.

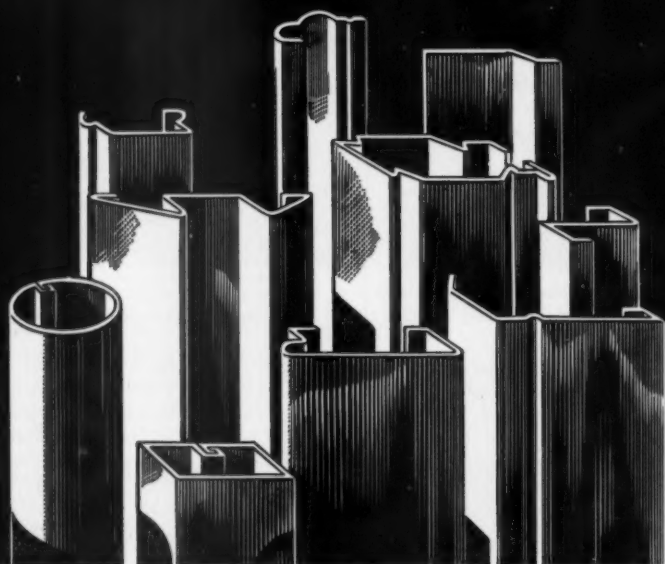


This Quality Audit Laboratory minutely examines random samples of production taken from the assembly line (one unit every hour) for any deviation from performance specifications.

At left an observer looks at an automatically transcribed chart which tells him how the washer performed during the previous night when the laboratory was unattended. This automatic observation makes it possible to evaluate the performance of the many products being tested on an around-the-clock basis.



# SALES APPEAL



If you require ferrous, non-ferrous, clad or embossed shapes, with uniform high-quality appearance, ready for your production lines, investigate Roll Formed's shapes. By combining forming, punching, notching and cutting to exact length in one high-speed operation, Roll Formed gives you the engineered shapes you want at lower cost. For detailed information of the shapes, designs and metals available **ASK FOR ROLL FORMED CATALOG 760.**



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HL-24

## Home laundry equipment liab

### Frigidaire's count down to reliability

A quality control program at Frigidaire Div. of General Motors has resulted in reliability accomplishments which are very encouraging. According to H. F. Lehman, vice president of GM and general manager of Frigidaire, 1961 automatic clothes washers and dishwashers require approximately 60 percent less service attention than 1957 models.

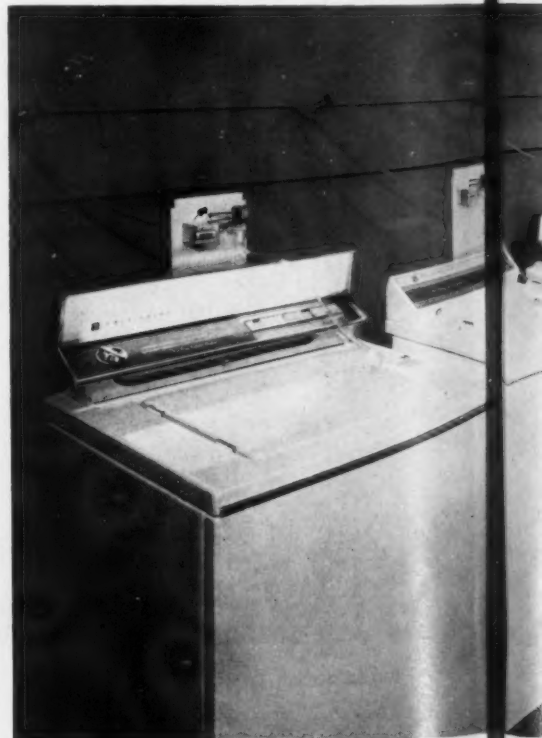
"It is significant that this great improvement in product dependability has been possible despite the numerous additional meaningful features which have been added to all appliances by customer demand," Lehman said.

Lehman credits the improved reliability to more precise machinery, new test equipment and improved methods and materials, in addition to "... the dedicated attitude of individuals at all levels of responsibility."

The average Frigidaire production employee is 48 years old and has nearly 20 years experience with the organization, Lehman said. "We grade ourselves on product quality every hour. There are quality meetings daily. Every critical part is inspected as it is manufactured and every finished appliance undergoes a complete functional test."

This functional test includes a thorough running test of the washer mechanism, leak tests using brightly colored

Frigidaire's 1962 automatic washers are shown on accelerated life test in engineering laboratories.



## Reliability pursued through quality control

water, and a complete check of connectors, wiring harness, timer and each control console.

As the assembled washer moves through final inspection, all functional operations are again checked and visual inspections are performed by an eight-man team. Water is run into the tub of every washer. One inspector checks tub balance and water flow; then tub bulkhead, hot and cold water hoses and pump for leaks. Off-balance spin tests of the tub are conducted by two others. The fifth inspector closely examines the mechanism for excessive noise and torque. Still another conducts a thorough tub spin check, leak test and slip wattage inspection.

Also, a technician gives the unit a check with a "black light" for oil leaks. The eighth inspector concludes the examination of each washer by giving it a complete visual check.

In addition to this thorough assembly line inspection, home laundry equipment is selected at random by the Proving Test Laboratory and subjected to complete functional tests, workmanship analysis and appearance appraisal. Accelerated life tests are also conducted on random units. Defects, if any, are carefully recorded, analyzed and reported to all interested departments, including engineering, reliability and quality control, production and purchasing. **MPM**



Inspector uses black-light gun to examine spinning washer mechanisms as they move along conveyor. Ultraviolet rays cause slightest trace of oil to reflect bright luminescence.



(Left) — Inspector uses hydrostatic gun to check quantity of oil in sealed reservoir of every automatic washer mechanism. (Right) — Final inspectors alongside assembly line conduct both functional tests and visual inspections as assembled units move toward warehouse.

"Laundry specialist" in Frigidaire's proving test laboratory refills automatic washers with load of soiled clothes to conduct tests duplicating actual home laundry conditions.

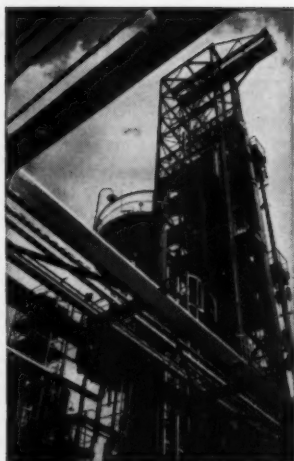


In tests such as this, the automatic washers are continuously operated 24 hours a day, month after month.

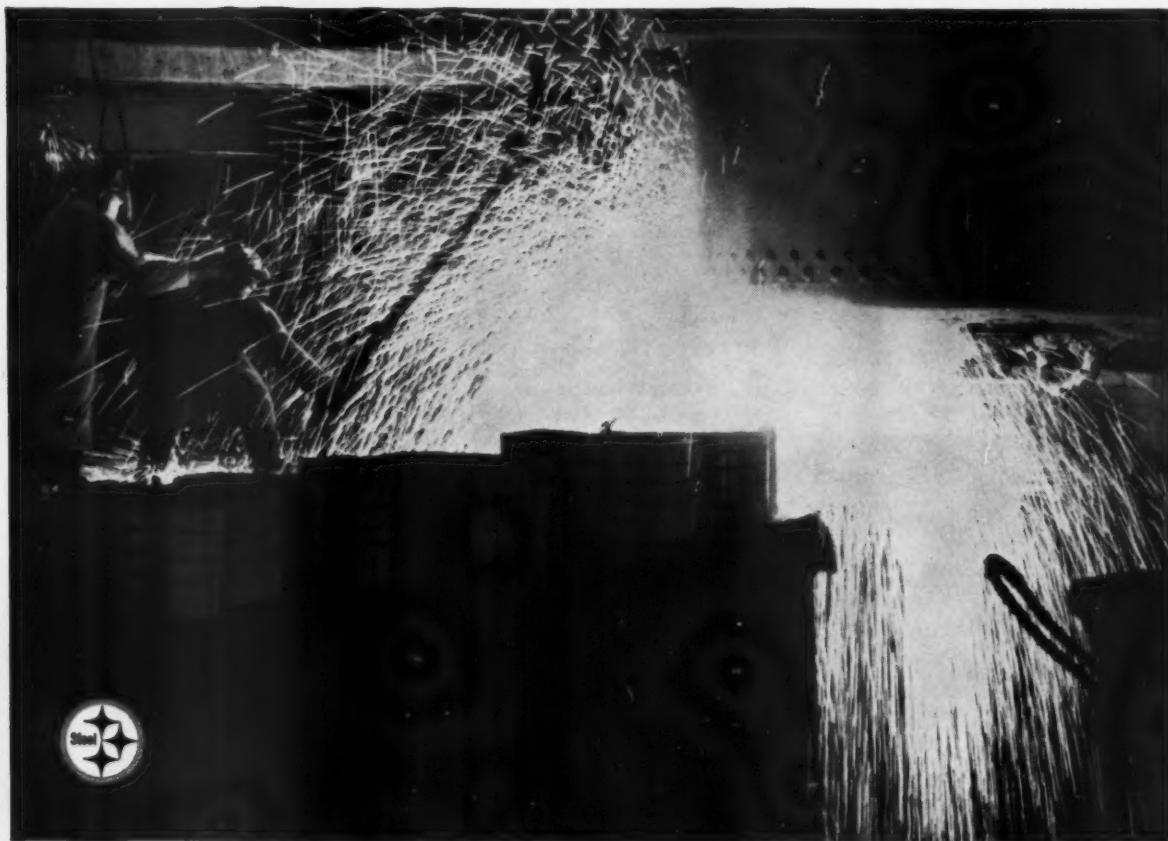




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HL-26

SEPTEMBER • 1961 MPM



## Flow coating ground coat at GE, Appliance Park

MPM PHOTOS

material sump tanks and auxiliary tanks below floor level; pumps, filters, controls and other equipment at floor level; and the actual flow coating equipment, service conveyor and auxiliary material supply tanks installed overhead.

The flow coating machine mounted overhead is approximately 20 ft long, with an inside opening 4 ft by 5 ft high. It is constructed of stainless steel. At this same platform level there are two 300-gallon storage tanks for ground coat, into which the enamel is pumped direct from the mill room.

With the equipment in operation, ground coat enamel is pumped from a below-floor-level main storage tank

which holds 700 gallons of ground coat slip. A 150-gallon per minute pump forces the enamel through magnetic separators to the overhead flow coating machine, which utilizes  $\frac{3}{8}$ -in. tubing nozzles. There is also a flood curtain at the exit end of the machine which is particularly effective in removing splash marks from flat ware, resulting in an exceptionally smooth finish. Following the flow coating operation, the ground coat slip feeds by gravity into two gyrating screens for the continuous removal of any foreign material, and then returns to the main sump tank.

On the main line, feeding from the pump to the nozzles, there are two per-

**T**HERE ARE MANY POINTS OF INTEREST in the porcelain enameling area of GE's home laundry department at Appliance Park. The ground coat flow coating system was selected for this descriptive feature, not because the flow coating of ground coat porcelain enamel is an innovation, but because of the well designed, compact facility for accomplishing this operation in GE's Building 1, and the results reported over a period of some six years of successful operation.

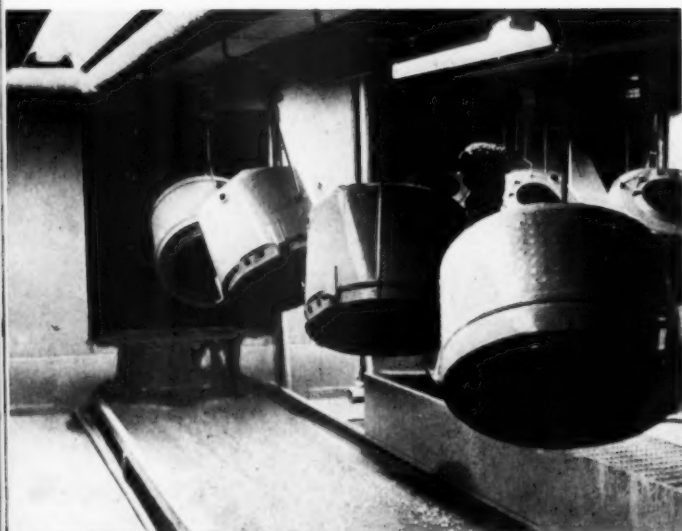
The parts chosen for the photography to illustrate this feature are washer baskets, tubs and dryer drums. It should be emphasized, however, that a great variety of parts can be, and are, successfully coated in the flow coating equipment. (Such items as washer tops, lids and panels for combination washer-dryers are flow coated regularly.) The point is made that the home laundry department has never found a part that could not be flow coated in ground coat if provision is made for proper draining from the more complicated parts.

### Minimum space requirement

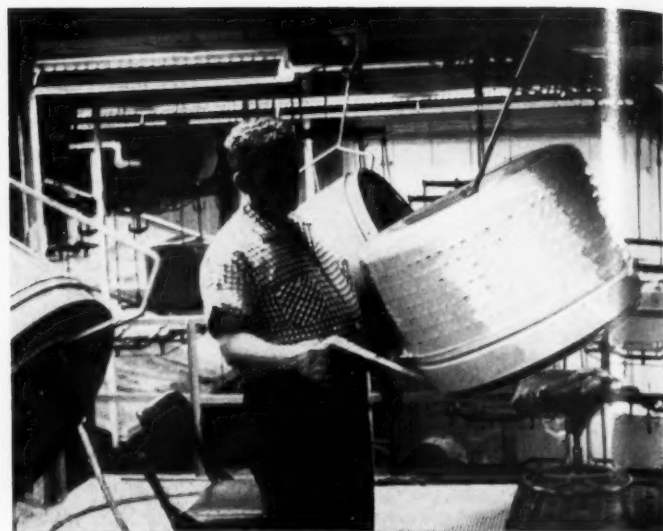
The complete flow coating system requires only 500 sq ft of plant floor space. The equipment is at three levels, with

Washer baskets, tubs and dryer drums are shown as they leave the roller hearth pickling unit. This large pickling machine measures 184-ft long by 12-ft inside working width.





This drain trough feeds back into the flow coat machine. Space is provided on the conveyor for one or more hand operations.



Operator is tipping washer basket to drain inside pockets. This hand operation is required only for parts with deep recesses.

manent magnets installed. These are sized for the capacity of the line.

There are two independent pumping systems for the flow coater. Although the pumps have been found to last from between nine months to a year, when a pump is turned off for repairs, the alternate pumping system can be placed in operation immediately to feed the flow coater.

In addition to the permanent magnets located in the line serving the flow coating machine, there is a system for recirculating within the sump tank itself, which includes magnetic separation. This system employs a double diaphragm pump, so that it has two outlets, each of

which feeds through a separate electromagnetic separator for continuous removal of any magnetic particles.

Adjacent to the main sump tank below floor level is a "clean-up" tank which may be loaded with water for pumping through the complete system, to clean out at night.

The two supply tanks, located overhead, feed the sump tank through an automatic level control. The two separate tanks make it possible to make changes in formulation very quickly. This can be done by running the production sump tank down to about 300 gallons, then pumping the material into one of the auxiliary tanks, and refilling to the 300-

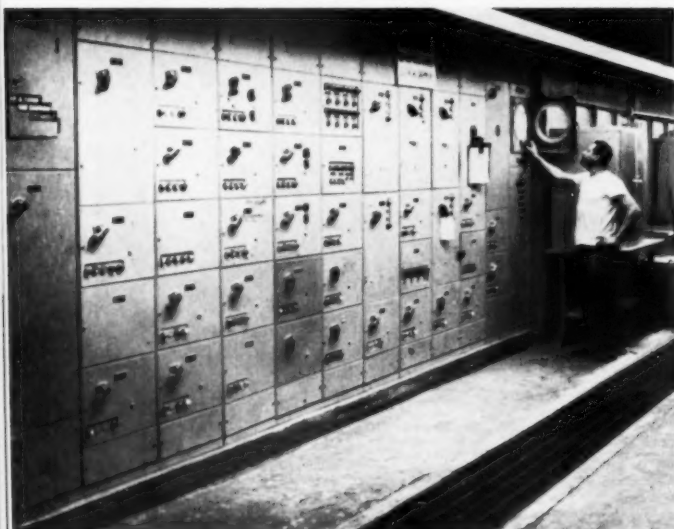
gallon level from the second tank. Formula changeover time by this method is estimated at 30 minutes.

The operator checks the specific gravity and set of the enamel slip every half hour and conducts a fired-part thickness test. Many different ground coats, including the low temperature variety, have been run in the flow coater and any material with dipping properties can be flow coated. The mill formulation and setup of the enamel, however, are different from dipping.

#### Ware travel

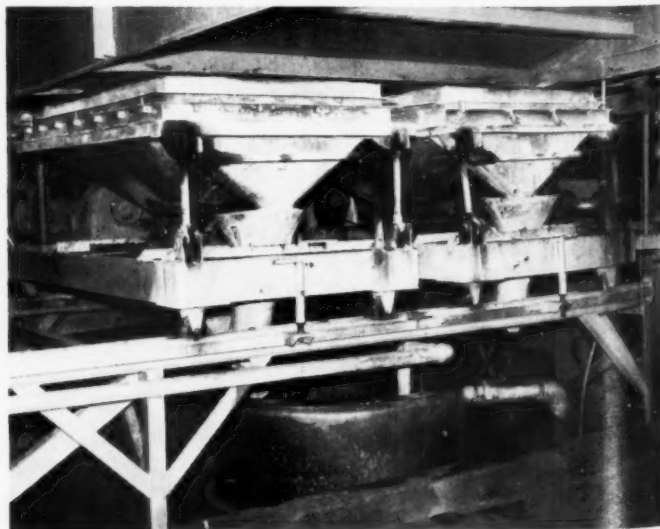
In following the baskets, tubs and drums through the system, we start from

This panel operates the following: air make-up system, flow coater, storage tank agitators, conveyor, dryer, and spray booth dust collector.

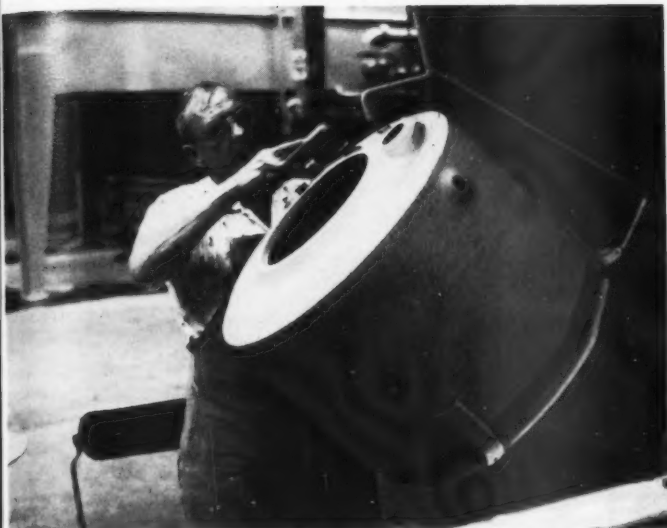


HL-28

Ground coat slip flows through these two gyrating screens from overhead flow coat machine, and feeds into the 700-gal. sump tank.







Tubs in the bisque state have holes brushed. A few flat surfaces where critical dimensions must be maintained are also brushed.



In this 30-ft reinforcing spray booth, operators touch up beaded areas and cover any thin edges on the parts for complete coverage.

the large pickling unit, measuring 184-ft long by 12-ft inside working width. This is reported to be the first roller hearth pickling unit used in the appliance industry.

The pickling machine is a 13-tank set-up with the following sequence: two cleaners, rinse, cleaner, two rinses, pickle, two rinses, nickle, rinse, and two neutralizers, followed by an indirect steam-heated convection dryer. Solutions in the pickle machine are tested every hour by the machine operators.

From the pickling machine, the ware is loaded immediately on a conveyor serving the flow coating machine.

As the ware leaves the flow coating

machine and travels over the drain trough, an operator tips the tubs and baskets to ensure complete draining. A second operator siphons ground coat, from entrapped areas, following which the conveyor carries the ware for a two-minute interval to a point at floor level for a beading operation.

The ware then travels immediately to an overhead, indirect-fired, gas convection dryer, where it is dried at 300 F for eight minutes.

The parts then return to floor level, where an operator brushes the holes and a few flat surfaces where critical dimensions must be held. This is followed by a 30-ft reinforcing booth where hand op-

erators touch up beaded areas and any thin edges on the circular parts. Ware then continues to a point parallel with the furnace chain. At this point washer baskets are loaded on an automatic stippling machine for interior stippling. They are then transferred immediately to special tools on the furnace chain.

Two hump-type electric furnaces with 65-ft firing zones are located in a separate room for the isolation of the heat.

*Editor's Credit: The editors of MPM extend credit to Kenneth Reifsteck, manufacturing planning, for technical details included in this descriptive feature.*

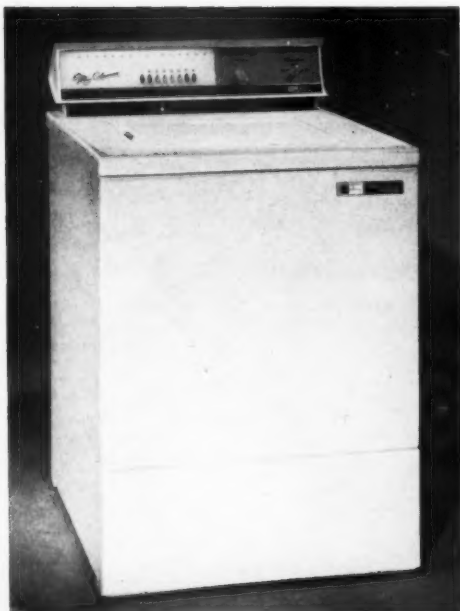
Two 300-gal. overhead storage tanks are fed direct from the mill room and provide for easy changeover of ground coat formulations.

At a point near the furnace chain, baskets requiring interior stippling are loaded on an automatic rotating stippling machines.



## HOME LAUNDRY REVIEW . . . a sampling of

### PHILCO . . . four washers, gas and electric dryers



A NEW LINE consisting of four 12-lb automatic washers and two matching gas and electric dryers has been introduced by Philco for 1962. Three washers have four-cycle programmed washing covering all essential washday requirements with single knob. Model W-226 (pictured) has eight cycles that include warm and cold soaks and extra rinsing, plus pushbutton controls. All models have two-speed performance except leader Model W-222.

Standard features on all models in the washer line are "automatic water saver" to regulate the right amount of water in both the wash and rinse cycles; "triple-duty dispenser" for fulltime lint filtering, detergent dispensing and rinse conditioning; counter-balanced safety lid; and perforated tub design for complete sand elimination.

In addition, all washers have the "wonder-wash" agitator, a bladeless design that "generates washing action 600 times a minute."

Philco's new dryers feature "full-drum airflow" and "criss-cross tumble" action for efficient drying. A special moisture measuring device on the top-line model permits the user to dial any degree of dryness desired.

Also featured on the top model is automatic dewrinkling, pushbutton controls, illuminated control panel, front-mounted lint trap and porthole safety door.

Both washers and dryers are offered in cabinets that measure 26 $\frac{3}{4}$  in. wide, 26 $\frac{1}{4}$  in. deep and 36 in. high. All models are available in Philco's standard turquoise, pastel pink and yellow, as well as white.

According to Jack Rishel, Philco vice president for laundry, "The new Philco-Bendix automatic washers have performed superbly under recognized industry-wide testing procedures at their rated 12-lb capacity."

### WHIRLPOOL . . . 14 improvements



A BANK OF KEYBOARD CONTROLS highlights design of Whirlpool's two new top-of-the-line automatic washers and four gas and electric dryers (two each). Many of the 14 improvements made on the new line were incorporated to improve the serviceability of units. These features are discussed on page HL-17 of this issue.

Retained from previous models are the automatic bleach and rinse conditioner dispenser, Whirlpool's "Surgulator" washing action, porcelain enamel top and rust-resistant cabinet (if desired, all porcelain enamel cabinet and top), and infinite-level water selection.

Whirlpool's new dryers give the homemaker the option of deciding when clothes are "just dry enough." The modulated heat introduced by the company last year produces heat to match the amount of moisture in clothes. In the new models, the simple adjustment of a sliding lever on the control console enables the user to produce the degree of dryness she prefers. There is also a damp-dry setting that retains the preferred amount of moisture in clothes ready for ironing.

The top model washers are available in pink, turquoise, yellow and coppertone, as well as white.

The company is also introducing five mid-to-low-end automatic washers and the same number of dryers and a new four-model line of conventional wringer washers. For the first time, three of the conventionals have lint collectors.

## ing of new models and improved features

### HAMILTON . . . "golden touch" washers and dryers



**R**EADY FOR EARLY FALL distribution is a new Hamilton automatic clothes dryer and companion washer. Called the "Golden Touch" models, they are white with gold on the back panel, controls and trim.

Available in both gas and electric models, the dryers offer two cycles, providing up to 85 minutes of drying time including five minutes of automatic wrinkle-free time. Also, a "fabri-dial" temperature control eliminates guessing about drying time, as the dial is marked in actual fabric types. Safety factors on the dryers include a door switch that stops the drum motor and turns off the heat if the door is opened; a safety thermostat to protect against overloads; a friction door catch that can be opened from the inside; and a motor-stop switch that turns off the heat supply when the motor stops.

The gas model can be supplied to operate on manufactured, mixed, natural or LP gas at a rated input of 18,000 Btu/hr. The electric model draws approximately 4700 watts at 230 volts or 1400 watts at 115 volts.

Triple-filtering action is one of the features of the Hamilton automatic washer. Wash and rinse water is forced up through the double-walled agitator, out, and down through a filter. Also, a ring of surface filters around the entire wash tub constantly skims off soap scum and other floating particles during wash and rinse cycle. Finally, sand, grit and heavier-than-water particles that settle to the bottom of the wash tub are automatically removed by "drainaways" under the agitator. Other operational features include water temperature control, dual-cycle rotary timer, two-speed spin, and two speed wash. Rinsing cycle includes five separate rinses. *More Home Laundry Review Pages HL-32 and HL-34*

### HOTPOINT . . . "fabric command" washers and dryers

**H**EADING A LINE of four medium-to-budget priced automatic washers and companion dryers recently introduced by Hotpoint is this "Fabric Command 700" pair. Increased flexibility in the choice of cycles and new color back panels characterize the 1962 line. Style leader (pictured) is a deluxe washer, a four-speed pushbutton model, and an electric dryer which permits increased flexibility in choice of cycles.

Washer has triple-cycle dial allowing homemaker to pre-select soil removing settings to correspond with type of soiled clothes to be washed. Dryer offers four push-button drying selections — normal, low, wash-and-wear and air-dry — and has lower 115 volt power consumption.

Hotpoint has retained its cannister-type lint filter that rides snugly on the agitator post and stays completely underwater. Other washer features include 10-lb capacity, all porcelain enamel interior and exterior, and dual dry bleach and detergent dispenser.

A two-speed washer for 1962, Model LW265 has many of the top-of-the-line features. It has a multiple selection of wash water, multiple selection of speeds, and the triple-cycle dial.

A deluxe single speed washer, Model LW245, features the triple-cycle dial and pushbuttons to pre-select wash temperature, rinse temperature and water level desired.





## NORGE . . . emphasis on service



**F**AMILY-SIZE CAPACITY" and complete front service (see page HL-17) are featured in the 1962 Norge automatic washer and matching automatic clothes dryer.

Top of the automatic washer line is Model 224-380, a two-speed, eight pushbutton model. A liquid bleach dispenser is mounted safely out of the way on top of the backguard, and covered with a sliding door.

The multi-cycle rotary dial provides four cycles: regular, short, soak, and the new super-wash cycle. The super-wash cycle extends the regular wash cycle period from 10 minutes to 14 minutes.

The washers have been equipped with a new tub that is designed to provide more freedom for clothes to tumble, turn and flex. The tub is larger than any previous Norge model. A "ballpoint" lint filter agitator serves as a detergent dispenser as well as a means to circulate water constantly and trap lint.

A new accessory offered for use in conjunction with Norge dryers is a hair dryer which snaps over the clothes port of any Norge dryer. The height of the dryer is adjustable and heat is set with the dryer's temperature controls.

Some of the features of the new dryers themselves include a 21-in. fan, a 272 cu. in. lint screen, five-way venting, automatic ignition, and a rubber grommet which serves as a lint wiper. The dryer line includes four basic models.

## FRIGIDAIRE . . . six-position fabric selector



**F**RIGIDAIRE'S 1962 LINE of home laundry equipment consists of nine washers, seven electric dryers and five gas dryers. A rigid quality control program conducted by the company on these products is described on page HL-22.

The "Custom Imperial" washer has a new fabric selector with six positions. According to the company, there are settings to handle any kind of fabrics from greasy shop-stained work clothes, wool clothes, wool blankets, or diapers, to the most delicate fabrics and wash-and-wear garments. With a push of a button the machine selects the proper speed for both agitation and spin, and wash and rinse water temperatures for various fabrics. In addition, there are pushbuttons for load selection to save water and others for cold wash and rinse if desired.

One of the outstanding features of the equipment is said to be the "baby care" automatic soak cycle. Clothes are soaked and washed with the push of a button.

The company claims highly efficient washing action through the use of a three-ring pump agitator.

The matching Custom Imperial dryer features both "timed" and "automatic" drying cycles. A new six-position fabric selector provides the correct amount of heat for any type fabric, in addition to a 30-minute no-heat cycle for fluffing and airing.

The "flowing heat" dryer does not require venting or plumbing because of a special device that eliminates excessive moisture and heat from the air discharged into the room. An easy-to-clean nylon lint filter is conveniently positioned in the door. Many of these features are included in washers and dryers throughout the line. Some models come in turquoise, copper, yellow and pink.

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### KELVINATOR . . . improved lint filter



A SHORT LINE of home laundry equipment introduced by Kelvinator earlier this year features a simple, more efficient lint filter.

According to E. B. Barnes, general sales manager, the new models represent the third sequence of significant improvements in Kelvinator home laundry products in little more than a year, under the company's "no annual model change" policy of constant basic improvement.

Barnes said the new lint filter system has been test-rated up to 50 percent more efficient than the more complicated system it replaced. The pumping action of Kelvinator's "deep turbulent" washing principle floods water into the filter from the top of the tub, where most of the lint floats, instead of pumping water up from the bottom.

The new design has reduced the number of major parts involved from more than 20 to only three.

While styling continuity has been maintained and previous models have not been "outdated" on the basis of looks, Barnes said, the lint filtering system and other technical refinements have added to performance and durability of the new washers.

### MAYTAG . . . companion to Highlander washer

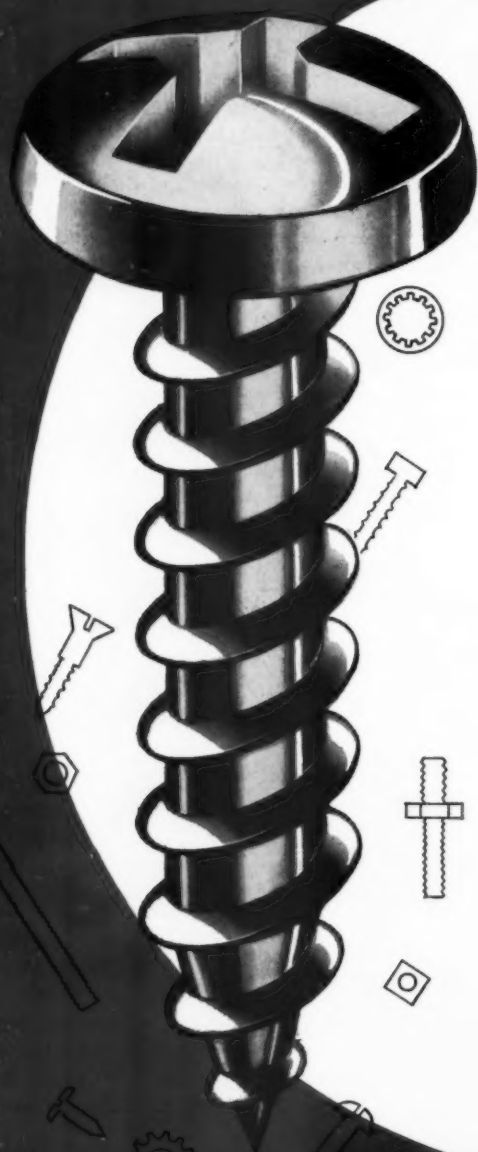
A NEW HIGHLANDER DRYER in gas and electric models has just been introduced by Maytag. The new budget-priced Highlander washer was put on the market earlier in the year.

Maytag's automatic electronic dry control is incorporated in the new dryer series. The control system, which consists of four pushbuttons, enables the user to select one of four drying cycles: a "regular fabric" cycle dries cottons and linens storage dry, and a signal sounds when the clothes can be removed from the dryer; "wash'n wear" provides the proper heat level to remove wrinkles, and a signal sounds when cool-down period begins to remind the homemaker to remove wash-and-wear articles before the tumbling stops in order to minimize wrinkling; "damp dry" brings washed items to the right degree of dampness for immediate ironing; and an "air fluff" cycle provides approximately 7 to 9 minutes of tumbling with air flow but no heat.

The Highlander electronic control uses the same 72 moisture-sensing elements as the deluxe model, but the Highlander unit has a larger capacity condenser rather than a timer to provide extra time on the "regular" cycle. In addition, the cool-down period on the Highlander is controlled by a thermostat rather than a timer. There is no "time dry" setting on the Highlander model dryers.



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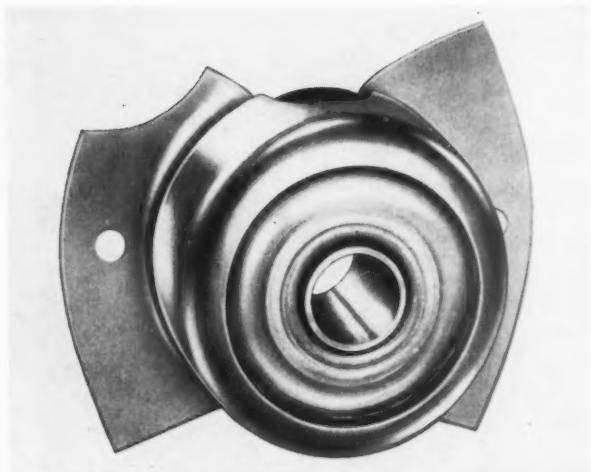
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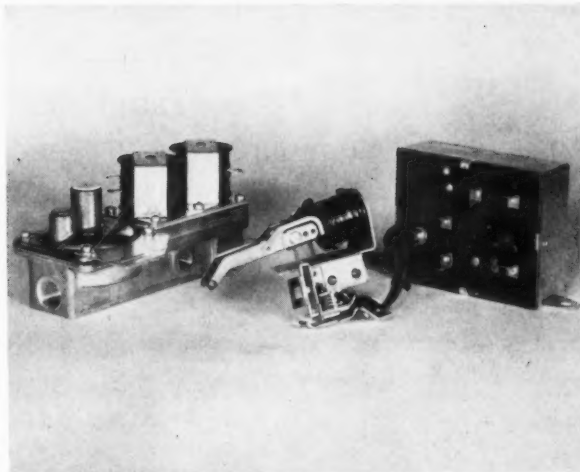
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#### CUSHIONED SIDE FLANGE BEARING . . .

by Triangle Mfg. Co. is designed to reduce cost and provide greater lubricant reservoir and self-alignment in washers and dryers. A neoprene "vent-lock cushion" provides vibration suppression in the new bearing. The bearing unit is a standard Triangle closed ball with a large lubricant reservoir filled with oil-saturated felt backing up the oil supply of the sintered bronze bushing. Higher viscosity oil is used because of the elevated temperatures usually encountered in these applications. Tests have indicated that the bearing is expected to run the equivalent of 10 years in a typical clothes dryer.

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#### DIRECT IGNITION SYSTEM . . .

by McQuay-Norris Mfg. Co. provides a means of directly lighting a gas burner on a clothes dryer or other appliances without the use of either a pilot flame or high-voltage spark. This is accomplished by use of a magnetic vibrator with an operating coil that is made and broken by its vibrating contacts. The magnetic vibrator unit is mounted in a position on the burner where the spark or arc from the contacts will instantly light the gas each time the burner comes on. System consists of a regulator, valves, a flame sensing switch, the vibrator, and a safety relay and warp switch unit.

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## NEW FROM THE HOME LAUNDRY INDUSTRY SUPPLIERS

TO PAGE HL-39 →

#### APPLIANCE INSULATION . . .

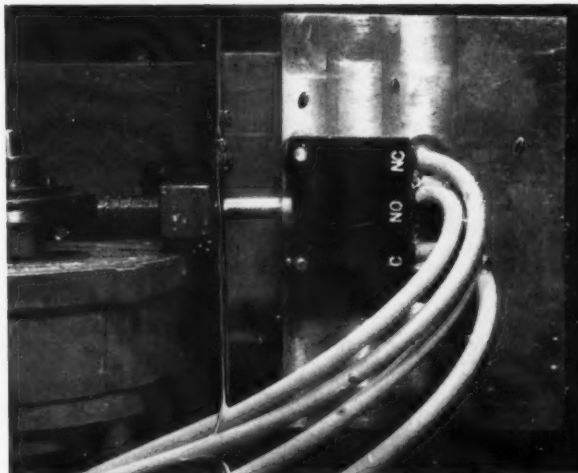
by Owens-Corning Fiberglas Corp. is said to have improved resistance to high temperatures and excellent thermal and acoustical properties. Designated AFH-300 Series, the insulation is a flexible, fine-fibred resilient Fiberglas blanket for heated appliances in which insulation normally is adhered to a panel, such as in home laundry equipment. At present the insulation may be obtained in six nominal densities ranging from  $\frac{3}{4}$  to  $2\frac{1}{2}$  lb per cu ft in compressed rolls or fabricated pieces. This permits a variety of thermal and acoustical insulating values and physical handling characteristics.



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#### WATERPROOF SWITCH . . .

by Controls Co. of America is said to be capable of underwater operation without leakage. According to the company, the snap-action limit switch is engineered for a minimum life capacity of 1 million cycles and has been actuated 200,000 times with full overtravel under 1 in. head of water without leaking. Key element of the switch is the plunger, which is made of Delrin and sealed in a special neoprene boot. The outer case is nylon. The switch is available with wire leads potted in epoxy or spade terminals. Actuators that snap on the case are available. Photo shows underwater test.



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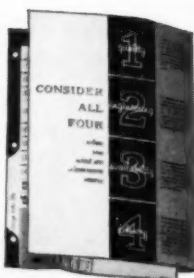


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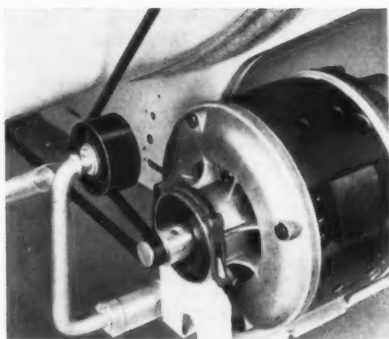
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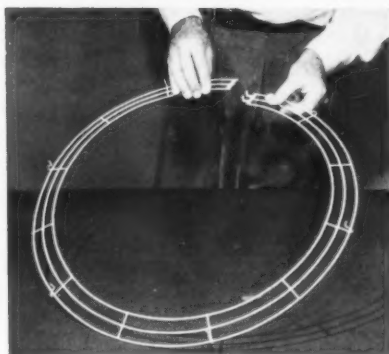
### Poly V-Belt Drive



A grooved Dayco Corp. Poly V-belt can be applied to an automatic clothes dryer to transfer power from the motor sheave to the periphery of the dryer drum. According to the company, the full contact of the rubber keeps the belt firmly seated in the motor sheave and prevents belt "flop-over." Also, the direct 36:1 reduction eliminates an intermediate stage, and the design of the drive permits more efficient but less costly bearing arrangements.

Circle No. 213 on Reader Service Card.

### Corvel Vinyl Finish

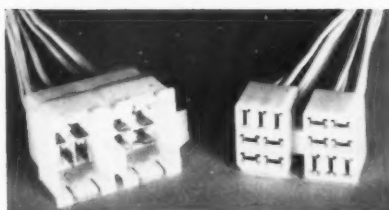


Picture shows metal close guard for an automatic washing machine. Guard is coated with Corvel vinyl supplied by Whirlclad Div., The Polymer Corp. The finish is said to prevent snagging and provide corrosion resistance.

Coating is applied by the fluidized bed process, in which the fabricated close guard is dipped into a bed of fluidized dry powders which effuse onto the surface to form a continuous, uniform film.

Circle No. 214 on Reader Service Card.

### Multiple-Circuit Connector



A multiple-circuit connector with a high amperage rating plus low insertion and extraction forces has been developed by AMP, Inc. The

MPM SEPTEMBER • 1961



WHERE  
PRODUCT  
RELIABILITY  
IS IMPORTANT...

**KLIXON**  
DISC TYPE THERMOSTATS

*Give Your New Models Added Dependability  
That Keeps Customers Sold*

Actuated by the scientifically calibrated Spencer disc, KLIXON fixed temperature thermostats "snap" the circuit open with a clean, quick break . . . "snap" it closed with a solid make. And because they have no complicated parts with knife edges or toggles, their accurate performance is unaffected by shock, vibration, altitude or cross ambients regardless of the mounting position. The result . . . dependable day-in day-out performance that helps assure greater product reliability.

KLIXON 20400 and 20600 series disc type thermostats are ideal for application as fan switches and limit controls in electric clothes dryers, appliances, heating equipment, industrial and commercial apparatus. Their relatively small size makes them suitable for use where space is limited. They have heavy duty electrical capacity . . . up to 25 amps., 120 and 240 VAC resistive. U/L approved for 100,000 cycles. KLIXON disc type thermostats are available with bottom or surface mountings . . . screw or quick connect terminals.

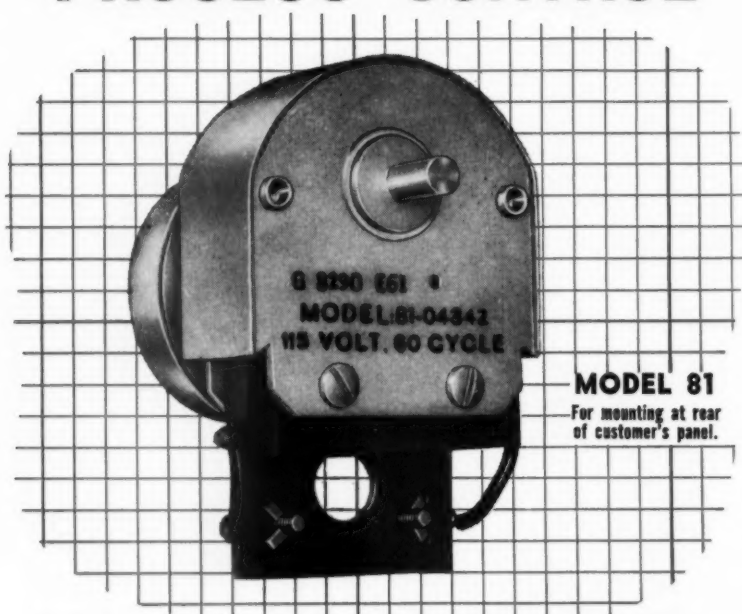
These KLIXON thermostats are available in automatic or manual reset types. Our field engineers will gladly help you make test applications. Write for technical data bulletins THSN-19, THSN-23, which give complete performance characteristics, temperature setting information and dimensions.

**METALS & CONTROLS INC.**  
5909 N. MAIN STREET • VERSAILLES, KENTUCKY  
A CORPORATE DIVISION OF  
**TEXAS INSTRUMENTS**  
INCORPORATED

Circle No. 345 on Reader Service Card.

HL-39

# DESIGNED FOR ECONOMICAL PROCESS CONTROL



## hagen single circuit motor reset timers

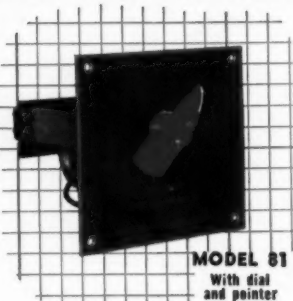
This Timer is used for controlling a process or series of processes to be operated for a selected interval and then shut off automatically.

Timing starts when an external contact is closed and remains closed for the duration of the cycle. Should power fail, the timer resets to starting position and begins a new cycle when power is restored.

Unique mounting of Reset Spring provides uniform tension over the entire timing scale, thus insuring long spring life and better motor performance.

Timers equipped with an over-ride, slip-clutch assembly to further protect the motor when timers remain in a "timed-out" position with the motor coil energized.

The Model 81 has an adjustable time setting and is available with calibrated dial and time-set pointer or without dial and pointer (as shown at top) for mounting at rear of customer's panel.



### STANDARD TIMER RANGES

Time Range	Dial Divisions	Reset Time
0-4 Seconds	1/4 Sec.	1/2 Sec.
0-15 Seconds	1 Sec.	1/2 Sec.
0-60 Seconds	5 Sec.	1 Sec.
0-3 Minutes	15 Sec.	5 Sec.
0-5 Minutes	15 Sec.	10 Sec.

**CONTACT RATING**  
15 Ampere 125/250 v.a.c.

**DIAL SPREAD**  
225 Degrees

Write for Bulletin 1610 describing the HAGEN line of Single Circuit Motor Reset Timers



**HAGEN MANUFACTURING COMPANY** BARABOO, WISCONSIN  
Of The Gamewell Company  
AN E. W. BLISS COMPANY SUBSIDIARY

Circle No. 332 on Reader Service Card.

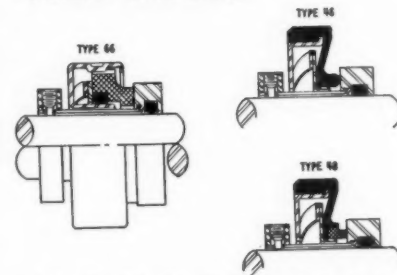
connector accommodates 7, 14 or 20 circuits.

Called Ampeez, the connector is rated at 25 amperes, with an insertion force per pair of contacts of 2 to 5 lbs. The advantages of this multiple connector over single-connect products are said to be twofold: reliability is increased by eliminating the human error factor inherent in individual connections; and 100 percent field service inspection of an entire assembly is possible.

A 14-circuit connector is currently in use on one 1961 washer line as the disconnect between the backplash and the base cabinet.

Circle No. 215 on Reader Service Card.

### "Unitized" Shaft Seals

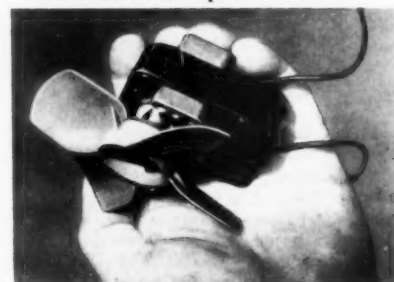


A family of "unitized" shaft seals in the low to medium price range has been introduced by Gitts Bros. Mfg. Co. The three types of seals offered all contain both stationary seal face and positive-drive mating ring factory-assembled as one unit.

Extra economy is said to result from this "cartridge" construction because both seal and mating ring are purchased at one time from one source. Simple, hand installation of some models produces still more economies, the company says.

Circle No. 216 on Reader Service Card.

### Fractional Horsepower Motor



Howard Industries, Inc., has developed a new sealed-in lubrication unit-bearing fractional-horsepower electric motor called the Howard S/L-1075. When the motor is built, the lubricating oil is sealed inside the turning rotor, thus cutting down oil oxidation to a minimum and eliminating the need for future oiling.

The motor, available in horsepower ratings of 1/750 to 1/85, is supplied as a skeleton motor or in a housing with various mounting plates.

Circle No. 217 on Reader Service Card.

### Synthetic Pearl Essence

New synthetic pearl essence produced by Mearl Corp. is available in "Murano colors." According to the company, the pearl essence provides color along with pearly lustre. Available in formulations for surface coating and

TO PAGE HL-43 →



**20%-40%  
MORE ALKALI RESISTANCE!**

## **3 New Low Temperature Frits by Pemco**

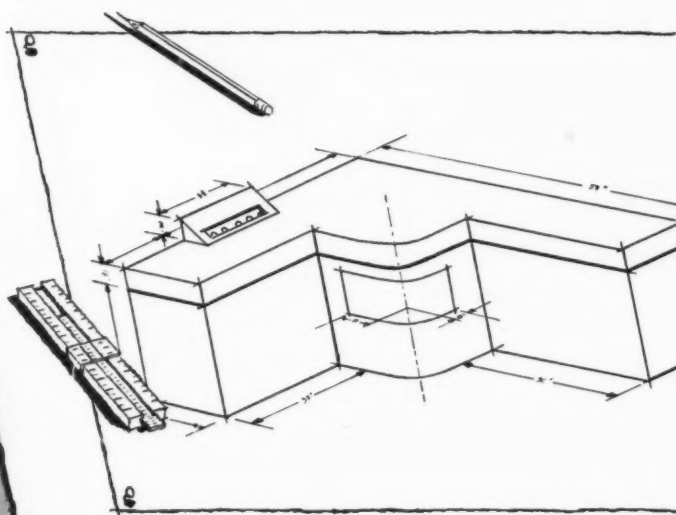
**BEST FOR  
DISHWASHERS  
AND HOME  
LAUNDRY  
EQUIPMENT**

**SUPERIORITY  
PROVEN IN  
PRODUCTION  
RUNS AND  
FIELD TESTS**

These three new frits offer you outstanding qualities in terms of alkali resistance, workability, stability in slip form, and broad range firing (1425° to 1525°F). Designed for use as one-coat enamels, they also work well in conjunction with covercoats. Write for specification sheets on frits number 2618, 2619, and 2620.

FIFTY YEARS OF RESEARCH AND A FLAME

**PEMCO** CORPORATION  
BALTIMORE 24, MARYLAND



HIGH QUALITY PORCELAIN ENAMEL FRITS AND COLORING OXIDES

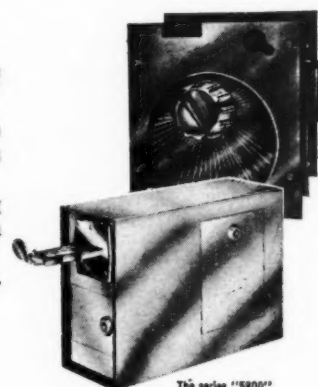
Circle No. 354 on Reader Service Card.

*Greenwald*

once again offers positive proof of its leadership in the coin-op field with the introduction of its series "5800" Dry Cleaner Meter.

Here are all the features you may expect of a Greenwald design

- Price changes may be effected easily and quickly by a simple flick of the selector switch (no tools necessary).
- Rejection of any coins deposited after predetermined amount.
- Rejection of any coins when unit is inoperative.
- Rejection of tokens and bent coins.
- Easy service of front plate and rejector assembly from front of machine.
- Insertion of coins may be simulated by use of test button.
- Easy serviceability of all components. No unsoldering of wires... only quick disconnects used.
- Rugged construction of vault and money box assembly. Die cut doors for pilferage protection.
- Available with threaded stud locks or "Quick-Collect" quarter turn lock.
- Solenoid is protected by a fuse.



This series "5800" is another development from America's leading manufacturer of coin laundry equipment.

H. GREENWALD COMPANY 1340 Metropolitan Ave Brooklyn 37, New York • GLenmore 6-5900

Circle No. 376 on Reader Service Card.

## Components

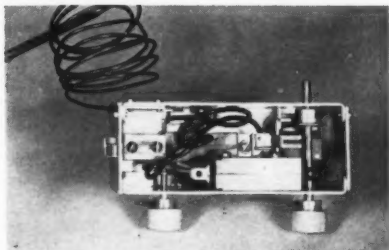
→ FROM PAGE HL-40

for incorporation into plastics, the colors provide effects which cannot be achieved with conventional colorants, the company says.

Colors such as gold, red, blue, green and orange are now available. The colors are produced by optical effect rather than by absorption of a particular band of wave lengths as occurs with ordinary dyes and pigments.

Circle No. 218 on Reader Service Card.

## Dryness Control



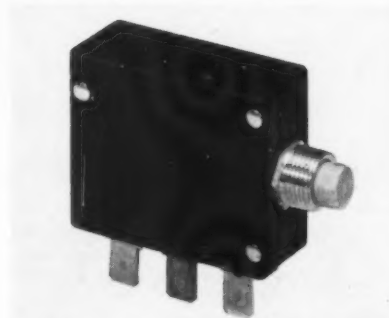
A McQuay-Norris Mfg. Co. dryness control for automatic clothes dryers operates on the principle that as long as moisture is present in the air the temperature of the air will be lowered.

The unit utilizes a bimetal member which is heated by a resistance wire wound directly on the bimetal. The heater wire is connected in parallel with the main burner solenoid. When the main burner solenoid is on, heat is being stored in the bimetal member. When the main burner solenoid is off, heat is being removed from the bimetal to the surrounding air.

As moisture evaporates from the clothes, the off cycle becomes longer and the on cycle becomes shorter. When the time of the on and off cycles becomes approximately equal, or about one minute each, the clothes are dry.

Circle No. 219 on Reader Service Card.

## Start Relay-Overload Protector



A compact unit produced by Mechanical Products, Inc., is designed to give overload protection and starting means in one housing. Although the model pictured has a manual reset, it can be supplied as an automatic recylcing device.

According to the company, the starting section of the device is extremely sensitive and in some cases can be adjusted to pull-in and drop-out differentials of .6 amperes or slightly less.

Circle No. 220 on Reader Service Card.

## Multiple-Program Timer

A versatile cycling timer produced by Cramer Div., Giannini Controls Corp. is capable of synchronizing the operation of up to 20 inde-

## ANOTHER DESIGNER FOR YOUR STAFF



## ANOTHER DEPARTMENT TO YOUR FACTORY



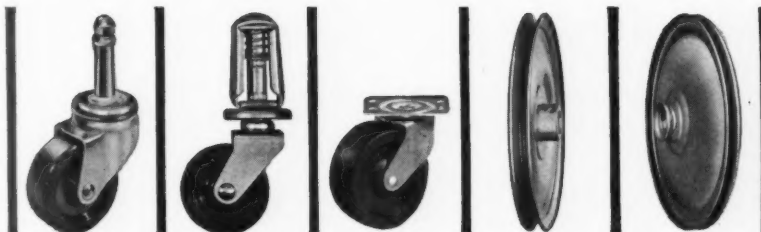
## AT NO EXTRA COST!

Consulting NAGEL-CHASE is like adding an experienced pressed-metal designer to your staff—and NAGEL-CHASE can add a whole punch press department to your production facilities—usually, without an extra dollar of cost.

This company has been producing Washing Machine Casters, V-Belt Pulleys and other parts for the home laundry industry for over 30 years. All this accumulated experience and knowledge is at your disposal for the design and production of pressed metal components. Because of our extensive facilities and know-how in our branch of metal working we can frequently show a substantial saving in production costs.

In these "cost conscious" times, it could pay you to consult Nagel-Chase on many of your sheet-metal produced parts. Why not review your parts list or check with us on some of your new parts now on the drawing board.

*The* **NAGEL-CHASE Manufacturing Co.**  
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**decorative...  
operative...**



**or  
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☐ Have representative call.  
☐ I would like to explore Design Service on hardware for

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Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

Circle No. 304 on Reader Service Card.

pendent load circuits and is designed to allow the user to change cycle speeds and to alter the operating points of each load circuit as required by changed program needs.

Applying power through an external sustained contact starts the permanent-magnet synchronous motor, which runs at constant speeds as long as the power is on. A spur gear on the motor output shaft drives the timer mainshaft through a replaceable gear-change arm to provide the desired cycle speed.

Circle No. 221 on Reader Service Card.

#### Braking Caster

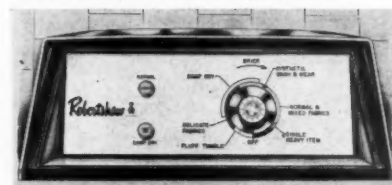


National Lock Co. has broadened its line of casters with the addition of a new braking model designed for application to home laundry appliances.

The new caster is available in two series with top bearing or grip neck stems. Wheels are furnished in black phenolic, polystyrene and rubber materials, in 1 3/4 and 2 in. sizes. The casters are assembled with a stem that includes a brass ring, providing friction inside the socket to hold the caster in place. A grip socket is optional.

Circle No. 222 on Reader Service Card.

#### Clothes Dryer Control System

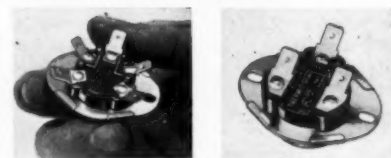


Model TLC "Timer-less" clothes dryer control by Robertshaw Thermostat Div., Robertshaw-Fulton Controls Co. automatically determines the evaporation taking place in dryers by measuring the temperature drop of the air passing through wet clothes.

According to the company, the control allows the dryer to dry clothes safely, in a minimum amount of time, and without over-drying.

Circle No. 223 on Reader Service Card.

#### Bimetal Disc Thermostats



Type 29T bimetal disc thermostat (above left) by Therm-O-Disc, Inc., has an internal heater that creates its own temperature or am-

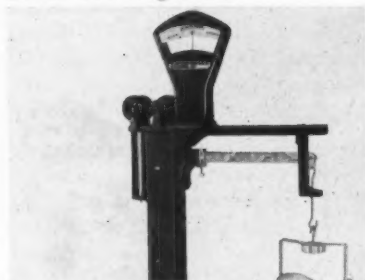
bient inside the thermostat. This additional internal ambient is used to lower the operating point of the thermostat.

By remotely controlling the voltage on the internal heater, the 29T can be made to operate through a range of temperatures. Furthermore, according to the company, the thermostat can operate to a very narrow differential.

The Therm-O-Disc type 11T (right photo) can now be supplied with a differential which will not exceed 8 F, the company reports. The snap-acting bimetal disc thermostat has a calibration range of between 125 F and 180 F. Temperature calibration is factory preset and non-adjustable.

Circle No. 224 on Reader Service Card.

#### Bench Counting Scale



A small counter bench counting scale, the Model #1742, with over-under attachment, is offered by Deteco Scales, Inc. Large quantities, up to 200 lbs, of small bulky parts can be counted quickly and within an accuracy tolerance of one ounce. One small item more or less than the required quantity is immediately made known by the indicator, which magnifies beam movement nine times, making an error immediately visible to the operator. Special design and construction make the scale adaptable to either straight counting operations or weigh-count operations.

Circle No. 225 on Reader Service Card.

#### Airless Spray Painting Unit



A compact airless spray painting unit in two models that will pump materials direct from a 55-gallon drum is available from Binks Mfg. Co. One model is designed for direct mounting in a 2-in. drum bung, and one for use with a drum cover. The cover model may be had with agitator and pump elevator if desired.

The unit, Compact 55, is designed for single gun application for protective and decorative coatings, with all the advantages of airless spray painting, excellent coverage, very little rebound and overspray, and excellent atomization of materials. The pump features a 25:1 pumping ratio, giving material pressures up to 25 times the input air pressure.

Circle No. 226 on Reader Service Card.

MPM SEPTEMBER • 1961

Nothing complements  
fine design like ever-  
lasting, ever-bright  
**STAINLESS TRIM**  
by **PYRAMID**

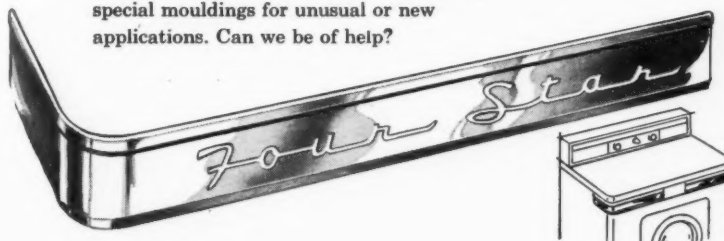


Only gleaming stainless steel provides life-long design accents that mean so much. Fine design and stainless steel go together, and this luxury touch costs so little with completely fabricated, ready to attach Pyramid frames, rings and trim.

Many Pyramid mouldings are fashioned to your design from money-saving standard tools. Hence, save production time and cost...yet allow complete design flexibility.

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Or we'll gladly work with you in designing special mouldings for unusual or new applications. Can we be of help?



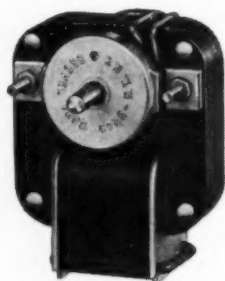
## Pyramid Mouldings Inc.

5365 WEST ARMSTRONG AVE., CHICAGO 46, ILL. — WHITE PLAINS, N. Y.  
WESTERN MOULDINGS INC., 1111 EAST 8TH STREET, UPLAND, CALIFORNIA

Circle No. 356 on Reader Service Card.

HL-45

of especial  
interest to  
Manufacturers of  
HOME LAUNDRY  
EQUIPMENT



Shaded pole motor—use alone  
or as backbone for geared  
motor.

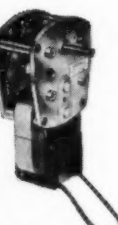
# every day Brevel meets unusual specifications for small motor applications

Your new appliances get into production—and to market—faster, at lower cost when BREVEL supplies your motors. Chances are we have a suitable design!

You can rely on BREVEL's experienced specialization to design, engineer, and volume-produce precision motors that give consistently superior service at low cost.

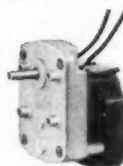
Our representatives cover every part of North America from local offices. Write, wire, phone NOW . . . and find out.

Series S  
Open Spur  
Gear Motors



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NEW Series FB  
enclosed  
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motor. High  
performance —  
low noise.  
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brake or clutch.



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LOS ANGELES: Electric Motor Engineering Inc. • 6515 Sunset Blvd. • HOLLYWOOD 9-7393

TORONTO: Brevel Products, Ltd. • 45 Crockford Blvd. • Scarborough, Ont. • PLYMOUTH 7-5140

## A LOOK BACK . . .

at the first  
home laundry special section

**I**N SEPTEMBER 1947 the first special section devoted to the home laundry industry appeared in these pages. Comparing the current issue's 48-page section, the 15th annual tribute to the industry, with the maiden effort (16 pages) demonstrates the transformation of the industry in the 1947-61 period.

In 1947 the industry's association had another name. The lead story in the section concerned the annual meeting of the "American Washer and Ironer Manufacturers Association."

Automatic washers were gaining popularity, but the meeting story pointed out that, "Although automatic washers have been very much in the limelight, the fact still remains that over twice as many manufacturers make conventional-type washers as those marketing an automatic or on record as planning to introduce one."

"I know of no other industry whose future is as promising as ours," was a comment made by association president Roy A. Bradt of Maytag. Bradt based his optimism on the "difficulty of obtaining adequate and satisfactory domestic help," "a huge replacement market accumulated through the war," an export market "that promises to become larger than ever," and the fact that "high income families are more interested in washers than any of us had a right to expect a few years ago."

The meeting report in the first home laundry special section also carried the announcement that the association's manual for instruction on the use of the household washer, dryer and ironer, "Simple Ways to Better Cleanliness," had "reached a distribution of almost 100,000."

C. L. Atkinson, Jr., sales service manager, Easy Washing Machine Corp., reported that the use of counterfeit parts in the repairing of washers was one of the problems to be considered by the "new" Parts and Service Committee.

In addition to additional articles connected with the home laundry industry, the section contained pictures of 27 new pieces of home laundry equipment, including 14 conventional washers and five ironers.

The emphasis has changed in 14 years.





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switches, water-mixing valves . . . all results of Controls Company development and design engineering for customer control requirements.

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Solenoids



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**CC** *Creative Controls for industry*  
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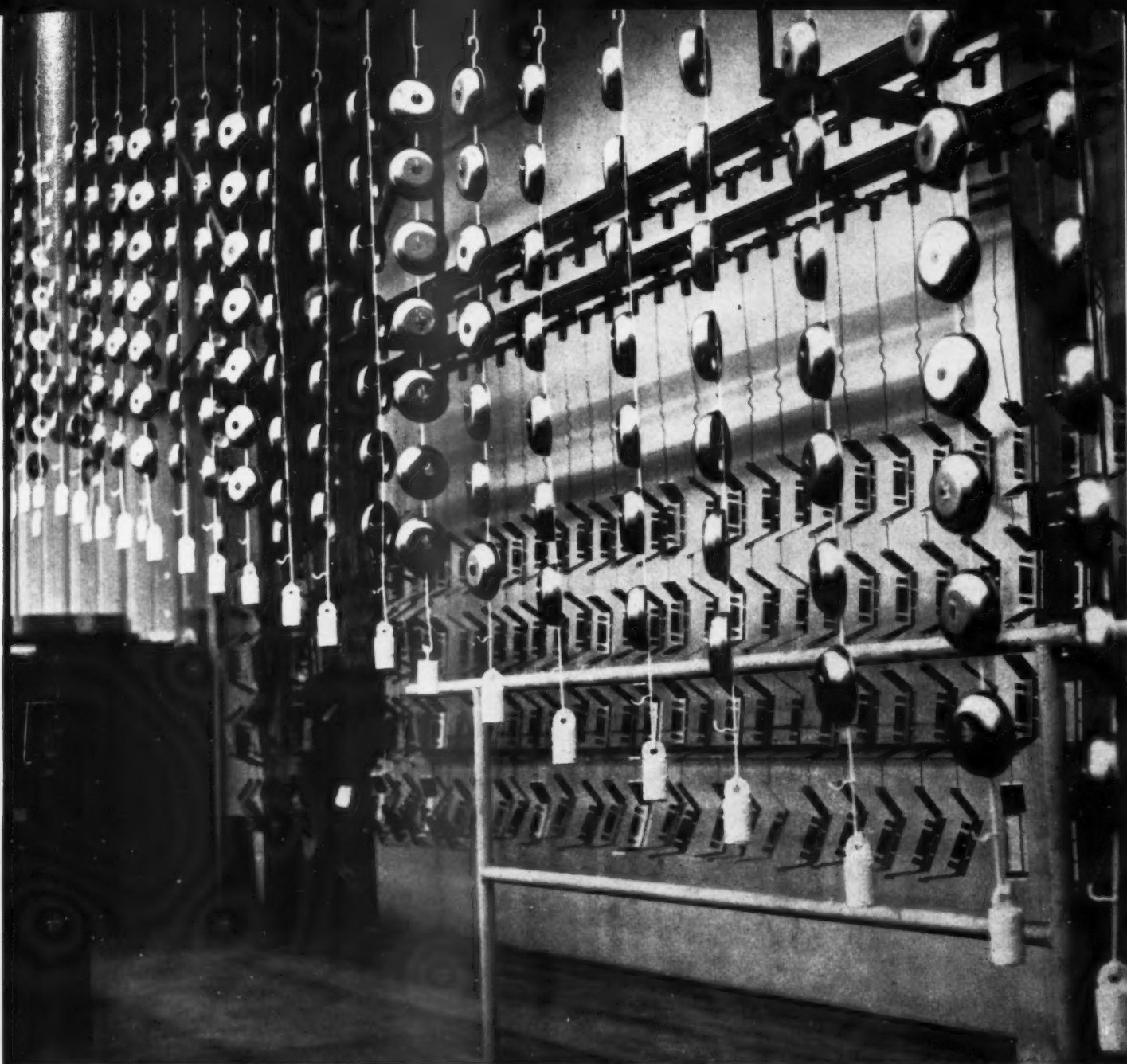
Electron Division  
 Tempe, Arizona

Control Switch Division  
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Also Cooksville, Ontario; Zug, Switzerland; Nijmegen, Holland;  
 Sao Paulo, Brazil; Buenos Aires, Argentina; Seine, France.

Circle No. 316 on Reader Service Card.





A PHOTO VISIT TO THE ORGANIC FINISHING DEPARTMENT OF . . .

## Smoot-Holman of Inglewood

AN MPM STAFF FEATURE

**A**T SMOOT-HOLMAN Co.'s Inglewood, Calif. plant, two lines of steel products are produced: commercial and industrial lighting fixtures (both fluorescent and incandescent), and steel plumbingware (sinks and lavatories).

The company is the largest manufacturer of RLM lighting fixtures west of the Mississippi, and its production of steel

plumbingware goes back to 1917. First production was made with stampings imported from Wales. One line of plumbingware, in 16 and 14 gage steel, is designed for compliance with FHA requirements. In addition, since 1917, the company has been manufacturing a line of sinks in 18 gage steel for economy applications. This line has been sold principally throughout the South and West, and in some foreign countries.

This photo gives some idea of the elaborate "product mix" which forms the production for the organic finishing department. Higher conveyor from which parts hang in foreground is main conveyor rising from loading pit and running into the five-stage cleaning and phosphatizing unit. The conveyor in background is for makeup of strings of small parts which are then transferred to the main conveyor, as required.

MPM PHOTO

Production lines at the Smoot-Holman plant, which consists of 145,000 sq ft of plant under cover, are set up for straight line production. Steel used for lighting fixtures is cold rolled, while enameling stock is used for deep drawn sinks.

In the fabrication department, there is a line of spinning equipment for the

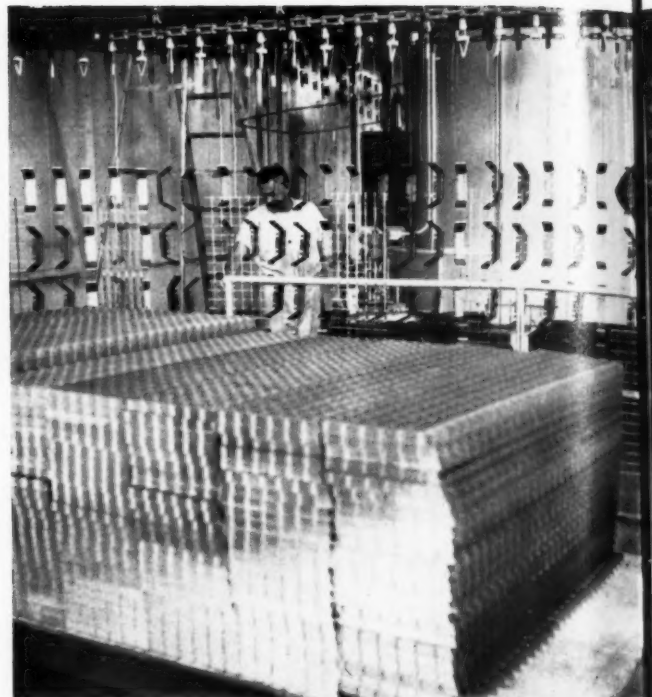




William G. Holman, President

"There has been a soft situation all over the country in prices, and real rugged competition. There is, however, a good volume of business on the West Coast now, and our first half of 1961 showed a 22-percent increase in sales over the same period of 1960."

(Right) — Operators in background are "wiring up" small parts on make-up conveyor. "Egg crate" louvers (in foreground) are loaded on main conveyor to the right.



production of standard shapes of incandescent reflectors. Parallel to this line is a series of hydraulic and mechanical presses for the production of the deep drawn sinks.

A porcelain enameling department is employed for finishing all plumbingware and the incandescent-type reflectors. Ground coat and cover coat are fired on the same chain, at 1550 F in a U-type, continuous furnace. The frits are selected for acid resistance for plumbingware and for high reflectance for the lighting equipment. All enamels can be adjusted to run at the same time and temperature.

An extremely clean and efficient or-

ganic finishing department is employed for coating fluorescent lighting fixtures (see accompanying photo story). The setup includes electrostatic spraying, conventional spray booths for touchup, and a "balcony" or catwalk spraying station. Considering the fact that the parts to be finished vary from 1/4 in. rod hangers to 2 by 9 ft sections, the department is extremely compact, and requires only 18 operators for full operation.

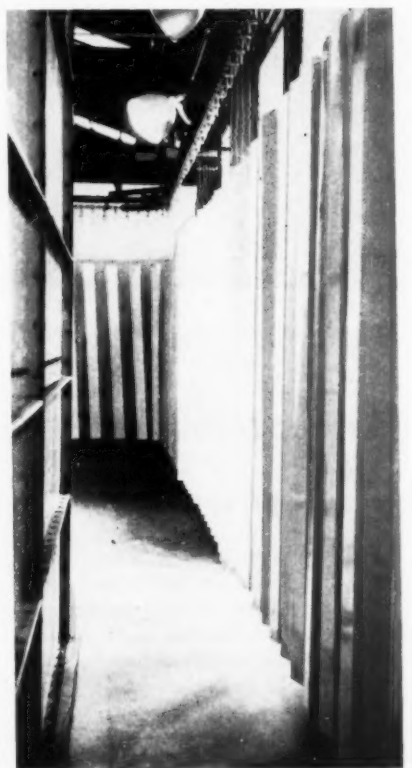
Smoot-Holman products are sold exclusively through wholesalers — plumber wholesalers in the case of the plumbingware, and electrical wholesalers in the case of the lighting fixtures.

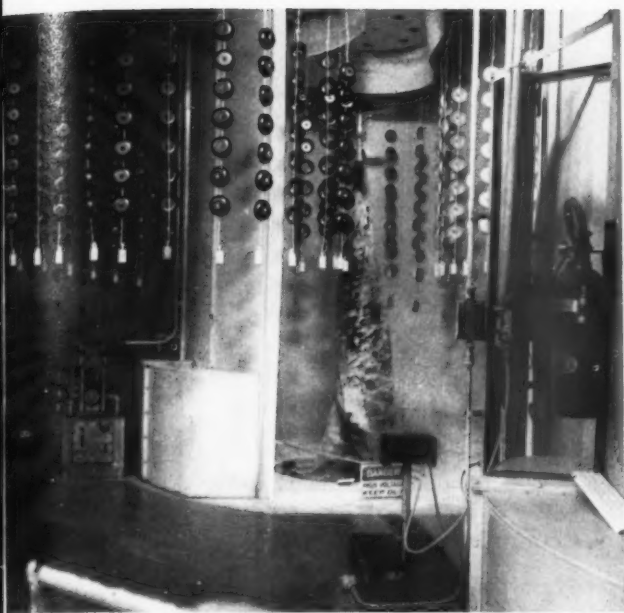
MPM PHOTOS

Nine-ft sections for fluorescent fixtures leaving exit end of the baking oven in the background. Distance from bake oven to unloading station provides adequate cooling of parts for comfortable handling without gloves.



(Left) — The specifications on California State buildings requires that there shall be no light leak around the frame of a recessed lighting fixture. This operator does a fine, detailed masking job which provides a narrow bank of black at the point where the light would normally leak. This special gun applies a dull black, air-dry paint which masks over the standard white baking enamel. Black metal mask completely shields part from overspray. Sharp detail is accomplished without masking tape.





(Above) — Section of the disc-type electrostatic installation in the Smoot-Holman plant. The equipment is built with sufficient height to accommodate 9-ft-long sections for fluorescent fixtures. Parts are conveyed and rotated counter-clockwise in the second electrostatic booth to the right of picture. Alternate hangers on the conveyors are equipped with "skate wheels" to provide rotation for specific parts.



Sprayer operates from catwalk for touchup of the upper half of 9-ft fluorescent sections as they pass through large water wash spray booth. A preceding operator at floor level is responsible for lower half touchup.



(Left) — Transfer point for finished parts. Operator takes parts from oven conveyor (not visible) and hangs them on a service conveyor feeding the assembly line.

Smoot-Holman believes in using its own products. This photo was taken in the company's production control room, where the lighting affords 250 footcandles at desk level. (For the benefit of photo bugs, the picture was taken at F/5.6, 1/100-second.





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**Chromate  
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### CORROSION PROTECTION

The wide range of Iridite coatings available gives you a choice of corrosion protection—from economical, mild protection of parts for shipment, storage or display, to extremely high protection under exposure to marine and highly humid atmospheres, gasoline or other hydrocarbons.

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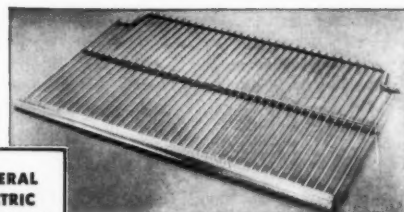
Your choice of colors ranging from clear through yellow iridescent to olive drab. Bright Iridite finishes can also be dyed to provide other color effects.

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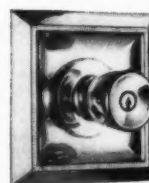
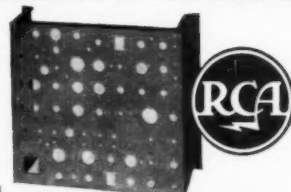
Iridite, in combination with other Allied Research processes, can provide a wide variety of finishes. As an example, Iridite 8-P applied to zinc or cadmium, followed by an application of Irlac, gives a highly attractive simulated brass finish.

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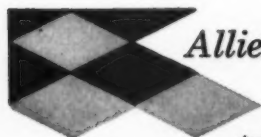
For complete information on Iridite, contact your Allied Field Engineer. He's listed in the yellow pages under "Plating Supplies." Or, write for **FREE TECHNICAL DATA FILES**.



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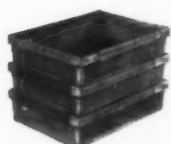
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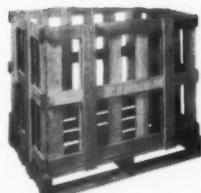
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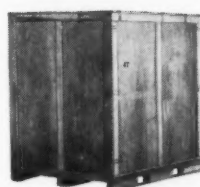
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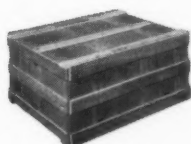
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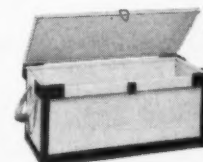
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## New strippable plastic film for protection of stainless steel surfaces

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- Will not embrittle during storage—retains elasticity
- Reduces wear on polished dies—eliminates lubricants in some instances
- Strips off easily—leaves no residue; final cleaning unnecessary



You get greater protection *plus* economy with the new in-fab plastic coating now being applied to MicroRold® stainless steel sheet, cut strip, and coiled sheet and strip. The semi-transparent protective film is 20% lower in cost than regular adhesive paper and offers more versatility in fabrication. The protective film is applied at our mill on customer order only, and is available on stainless steel in gages from .018" to .050" in widths up to 42". It is guaranteed to strip off in one piece by loosening with fingernail at any corner.

Strippable plastic protection is intended as a safeguard only during ordinary handling, storage and fabrication—not as a barrier for weather, water damage, undue abrasion, impact or foreign substance. Once removed it will not adhere again.

Want more information or a test sample? Write to Product Development Dept., Washington Steel Corporation, 9-G Woodland Ave., Washington, Pa.



**WASHINGTON STEEL CORPORATION**

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# MPM

## personals

Whirlpool has established a new top executive post within the RCA Whirlpool sales department and appointed three general managers of product sales divisions. **S. E. Sweet**, formerly general manager of the refrigeration division, has been named director of merchandising and will be responsible for the coordination of product development, overall sales and promotion programs, and pricing of all RCA Whirlpool home appliances.

Among the general managers of product divisions who will report to Sweet is his successor in the refrigeration division, **H. Thomas Stroop**, formerly manager. In addition, **Robert L. Brintnall**, general manager of ranges, has been named general manager of laundry products, and **Paul F. Armbruster**, southwestern regional manager, has moved up to succeed Brintnall as general manager of ranges.

**H. George LeClerc**, formerly vice president of the Link Div. of General Precision, Inc., has been elected to the new post of vice president-marketing of **National Rejectors, Inc.**, St. Louis. The position was created in connection with the firm's new program to expand activities.

**George W. Manuel** has been appointed field sales manager of commercial equipment for **Norge**. He will direct the national field sales organization responsible for sales to distributors of coin-operated dry cleaners and other Norge commercial equipment. He has been with the company since March 1959.

**Ralph D. Scoppa** has joined the **Geo. D. Roper Sales Corp.** as sales promotional manager. He formerly headed the York Air Conditioning Corp., Cincinnati branch, and prior to that was national sales promotional manager for **Norge Sales Corp.**

MANUEL



SCOPPA



BRINTNALL

**James M. Farrell** is the new vice president in charge of room air conditioner and dehumidifier sales for **Gibson Refrigerator Sales Corp.**, subsidiary of Hupp Corp.

**Frigidaire** has announced the promotion of two engineering department executives. **George C. Pearce**, supervisor of range engineering, has been promoted to cooking appliance and dishwasher engineering manager. **Charles D. Graham**, supervisor of drafting, model shop and product evaluation, has been promoted to laundry appliance engineering manager. Pearce has been with Frigidaire nearly 31 years, and Graham has been associated with the firm for 28 years.

**Alonzo B. Kight** has been elected president of **Borg-Warner International Corp.** He has been associated with the company since 1948, serving first as patent attorney for the parent company and later as administrative assistant to the president. In 1955 he was elected vice president of Borg-Warner International.

**Robertshaw-Fulton Controls Co.** has announced officials of the new **Lux Time Div.** of Robertshaw-Fulton following the acquisition of the assets of the **Lux Clock Mfg. Co.** **Arthur E. B. Tanner**, former Lux president, is now managing director of the Lux Time Div. **Paul A. Lux** is general manager of the division; **Eugene T. Crandall** is general sales manager, industrial; **M. C. Tighe** is general sales manager, commercial; **Fred Lux, Jr.**, is general manager of Lux Time, Ltd.; **Edward A. Koss** is general manager of the Lux branch in Tennessee; and **William F. Cahill** is controller of the division and assistant secretary of the parent corporation.

**Hilliard Y. Smuck** has been appointed president of **Quaker State Metals Co.** He has served Quaker State as chief executive officer, general manager, and vice president-sales. He joined the company in 1947 as a sales representative.



ARMBRUSTER



STROOP



SWEET

**John J. Gallagher** has been named to the position of general manager of sales of the **Weirton Steel Div., National Steel Corp.** He will be located in the general offices of Weirton Steel in Weirton, W. Va. He was formerly district sales manager of the Chicago office of National Steel.

**Robert C. Meili** has been named assistant manager, stainless steel sales, by **The Carpenter Steel Co.** In his new position, Meili will assist with sales and distribution of stainless steel directly from the mill and the Carpenter warehouse system.

**Graham B. Brown** has joined **Stauffer Chemical Co.** as general manager, Metals Div. According to the company, Brown's appointment reflects the firm's continued emphasis on the refractory metals field and its intention to rapidly establish a position as an integrated commercial producer of these metals.

**Edward G. Lipski** has been named manager of the newly formed **Non-Refrigerated Products Group** of **Westinghouse's Major Appliance Div.** engineering department. The new engineering group will include all major appliances manufactured at the Mansfield, Ohio, plant, as well as the kitchen utility items which are manufactured in Columbus.

**Carel Abresch** has been promoted to vice president-product engineering, **Waste King Corp.** His responsibilities will include development of new and current products as well as production engineering and quality and reliability

LIPSKI



ABRESCH





engineering. At the same time, Waste King announced three other promotions within its product engineering department: **G. A. Martinek**, manager of product design; **R. W. Forst**, manager of product production; and **R. M. Scherer**, manager of engineering services.

**Robert K. Powell** has been elected secretary-treasurer and a director of **Fairmont Aluminum Co.** Formerly secretary, he replaces **Harley T. Pyles**, who has retired after 32 years with the company. **Charles O. Kapp** has been named assistant secretary-treasurer.

**Edward L. Smith**, formerly manager of the Columbus plant of **Westinghouse Electric**, has joined the staff of **The**



POWELL



KAPP



THOMAS



MCWHIRTER

**Ohio Company**, Columbus, to work with the company's management service and underwriting division. Smith was with **Westinghouse** in various managerial capacities in **Mansfield, Ohio**, for a number of years, and then moved to **Columbus** in 1951 to manage the **Westinghouse Columbus plant**.

**T. O. Thomas** has been appointed general manager of the **International Div., U. S. Industries, Inc.** He had been assistant to **R. S. Wright**, group vice president of **usi's** international operations. Also announced was the appointment of **Jesse Morris** to be assistant general manager of the **International Div.**

**James McWhirter**, general manager of **Industrial Chemicals Div., Pennsalt Chemicals Corp.**, has been elected a vice president of the company. He has been with the firm since 1945.

**Robert F. Paling** has been appointed manager of heating control sales at **General Electric's Appliance Control Dept.**, **Morrison, Ill.** In his new position he is responsible for sales of the department's line of controls for domestic warm air, hot water and steam heating systems as well as controls for other special purpose applications.



WILDERN



PALING

**William J. Wildern** has been named vice president, **Contract Div.**, of **United Steel and Wire Co.** **Wildern**, assisted by **George L. Stierle**, **Contract Div.** sales manager, will be responsible for the expansion and further development of **United's** services to **OEM users** of wire products.

**Jerome L. Ross** has been promoted from assistant manager to general manager of **The Meaker Co.**, a subsidiary of **Sel-Rex Corp.** Sales engineer with **Sel-Rex** since 1949, **Ross** was in charge of plating equipment and supplies sales for two years, and had also been manager of the company's **Equipment Div.**

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Now, you can have airless economy even on fine finish work with the Graco Hydra-Spray. You can apply precise, even-mil thicknesses for final finishes on furniture, appliances, automobiles and similar products... and, you still get cost cutting airless features such as elimination of overspray and bounce-back, and better coverage with less waste.

A light trigger pull on the superbly balanced Graco "Golden Gun" creates an immediate, precise spray pattern with no lags to cause leaks or spitting.

The Graco "FF" Fine Finish tips handle a wide range of viscosities and form an excellent diamond-like lapping pattern suitable for the finest of fine finishes.

Add the "Golden Gun" and "FF" tips to one of the 11 Hydra-Spray models now available and you have a "trio" that's hard to beat for economical fine finish work.

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Circle No. 331 on Reader Service Card.

# Reader Service

## PILOT-OPERATED AIR VALVES

Three new Hannifin Co. air valve models capable of filling and exhausting a 100 cu. in. load chamber from 0 to 90 psi in .150 sec are illustrated and described in a new bulletin. Each valve is briefly highlighted in relation to its uses in application. In addition to the new valves, a companion line of bottom and side-ported bases are described.

Circle No. 101 on Reader Service Card.

## SNAP-ON SOLDERLESS TERMINALS

A line of snap-on solderless terminals are described in a brochure published by The Thomas & Betts Co. According to the literature, "Connecto-Blok" terminations combine the mechanical and electrical reliability of a permanent joint with the convenient installation and re-work possibilities of a fast-disconnect.

Information on applications and installation techniques are presented, as well as photographs depicting the features of the terminations.

Circle No. 102 on Reader Service Card.

## DIGEST OF PILOT LIGHTS

A recently published "Digest of Pilot Lights" offers condensed technical information on a wide range of Dialco pilot lights and the various lamps for which they were designed. Published by Dialight Corp., the literature includes life-size information, catalog numbers, lamp data, physical and electrical characteristics, charts, etc.

Circle No. 103 on Reader Service Card.

## HEATING ELEMENT ALLOY

A new eight-page technical bulletin describes properties and performance characteristics of Hoskins Alloy 750, a special low-growth, iron-chromium-aluminum resistance material developed primarily for use as heating elements in small appliances and other devices where operating temperatures do not exceed 2050 F. Technical data presented includes a tabulation of the alloy's physical properties, typical life and temperature-resistance curves, mechanical properties at room and elevated temperatures, plus complete specification tables.

The bulletin is available from Hoskins Mfg. Co.

Circle No. 104 on Reader Service Card.

## COUPLING CATALOG

American Coupling Corp. has released a catalog giving dimensions and specifications on the firm's standard line of industrial hose, hose couplings, union adapters and connectors. Detailed drawings and cutaway photographs are included.

Circle No. 105 on Reader Service Card.

## DAMPER CONTROL MOTOR

A new damper control motor developed by Brevet Products Corp. is described in a new brochure. The gear motor, which incorporates cam, switch and brake, is automatically energized when the blower is turned on. The louvers are opened by this motor instead of by the force of air from the blower.

According to the brochure, the brake causes the motor to stop quickly without

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coasting and holds the louvers in an open position. When the blower is turned off, the motor is energized again, going through another part of a revolution and closing the louvers tight.

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#### CAM LOCK CATALOG

A complete line of Corbin cam locks is described in a recently published 12-page catalog. Each type of cam lock, manufactured by The American Hardware Corp., is clearly illustrated, and includes a detailed dimensional drawing and complete design application information. Keying information is also included, as well as details on material and finishes.

Circle No. 107 on Reader Service Card.

#### GROOVED PIN FASTENERS

A four-page data file with engineering information about solid grooved pin fasteners is available from Driv-Lok Sales Corp. The data file also covers studs, dowels, and high-alloy, shear-proof pins.

The file lists recommended pin diameters for various shaft sizes and torque values transmitted by pins in double shear. Minimum single shear values are also listed in a separate table for pins of various metals.

Circle No. 108 on Reader Service Card.

#### 56-FRAME ELECTRIC MOTORS

A full line of ac general purpose 56-frame electric motors is described in a new six-page bulletin issued by Kingston-Conley, Inc., a subsidiary of Howell Electric

Motors Co. The bulletin describes motors for driving such machines as refrigerators, air conditioners, compressors, pumps, and high-inertia fans and blowers.

The bulletin presents selection and specification information, mounting arrangements, performance curves and lists of principal dimensions. It also illustrates a wide variety of special designs that are available.

Circle No. 109 on Reader Service Card.

#### SELF-LOCKING FASTENERS

Complete data on Sel-Lok spring pins, including design and performance information not previously published, is contained in an eight-page product bulletin published by Standard Pressed Steel Co.

The literature illustrates and describes 16 different applications, and suggests many more uses for the self-locking fastener. According to the company, the Sel-Lok spring pin replaces cotter pins, keys, solid pins, taper pins, wrist pins, and pivots, and can substitute for many other types of fasteners in hinge, laminating, positioning or axle applications.

Circle No. 110 on Reader Service Card.

#### TUBING AND SLEEVING INSULATION

A newly published booklet on Irvington brand tubings and sleeveings for electrical insulation in Class A through Class H temperature applications is available from the Irvington Div., Minnesota Mining and Mfg. Co.

The publication is designed as a reference aid in specifying tubings and sleeveings for electrical-electronic applications. It contains sections on how to pick the right tubing or sleeving, NEMA grading, methods of applying tubing and sleeving insulations, and useful storage tips. Extruded tubings and coated sleeveings of all types are included in the descriptions.

Circle No. 111 on Reader Service Card.

#### INNERSHIELD WELDING

A bulletin describes vapor-shielded arc welding and the new semi-automatic "Innershield Squirt" and fully automatic "Innershield" welders manufactured by The Lincoln Electric Co. Typical process applications are illustrated. Performance characteristics and process speeds are compared with manual shielded metal arc and semi and fully automatic submerged arc welding. Construction details and mechanical features of the welding equipment are also listed.

Circle No. 112 on Reader Service Card.

#### PATTERNED ALUMINUM SHEET

Forty-one different forms of patterned aluminum sheet are shown in "Designed Surfaces," now available from Aluminum Co. of America. Both a source of information for designer and engineer, and a technical reference to the patterns shown, the publication provides width and length availability data for alloys and tempers in which each pattern is normally available.

Each pattern is reproduced full-scale on textured stock. The flexibility of patterned sheet as a design medium is discussed in terms of potential applications and the range of variations that may be chosen by the designer.

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## Industry meetings

### GAS ASSOCIATION

The Pacific Coast Gas Association's 68th Annual Convention, Hotel del Coronado, Coronado, Calif., September 13-15, 1961.

### PORCELAIN ENAMEL

The American Ceramic Society, Inc.'s Divisional Fall Meeting on Enamel, French Lick-Sheraton Hotel, French Lick, Ind., September 20-23, 1961.

### PRESSED METAL

The Pressed Metal Institute's 1961 Annual Meeting, Grand Hotel, Pt. Clear, Ala., September 24-28, 1961.

### WELDING

The American Welding Society's Fall Meeting, Adolphus Hotel, Dallas, Texas, September 25-28, 1961.

### PORCELAIN ENAMEL

The 30th Annual Meeting of the Porcelain Enamel Institute, The Greenbrier, White Sulphur Springs, W. Va., October 5-7, 1961.

### INDUSTRIAL DESIGNERS

The 17th Annual Meeting of the American Society of Industrial Designers, Ambassador Hotel, Los Angeles, Calif., October 5, 1961, and St. Catherine Hotel, Santa Catalina Island, October 6-8, 1961.

### METAL SHOW

The 1961 Detroit Metal Show and ASM Materials Comparison Center, sponsored by American Society for Metals, Cobo Hall, Detroit, Mich., October 23-27, 1961, and 43rd National Metal Congress, presented by American Society for Metals and eight participating organizations, Cobo Hall, Detroit, October 23-27, 1961.

### HOME LAUNDRY CONFERENCE

The American Home Laundry Manufacturers' Association's 15th National Home Laundry Conference, Pick-Congress Hotel, Chicago, Ill., October 25-27, 1961.

### AUTOMATIC MERCHANDISING

National Automatic Merchandising Association's 1961 Convention-Exhibit, McCormick Place and Conrad Hilton Hotel, Chicago, Ill., October 28-31, 1961, and the First International Symposium of Automatic Merchandising, October 31-November 1, McCormick Place.

### HEATING, AIR CONDITIONING

The 48th Annual Convention of the National Warm Air Heating and Air Conditioning Association, La Salle Hotel, Chicago, Ill., November 8-10, 1961.

### AIR CONDITIONING

The Air Conditioning and Refrigeration Institute's Annual Meeting, The Homestead, Hot Springs, Va., November 12-15, 1961.

### NEMA

The National Electrical Manufacturers Association's 35th Annual Meeting, The Plaza Hotel, New York City, N. Y., November 16, 1961.

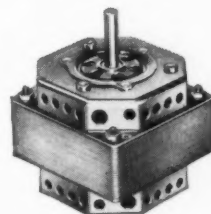
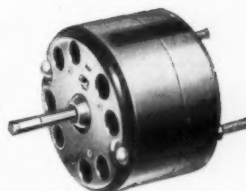
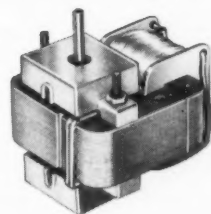
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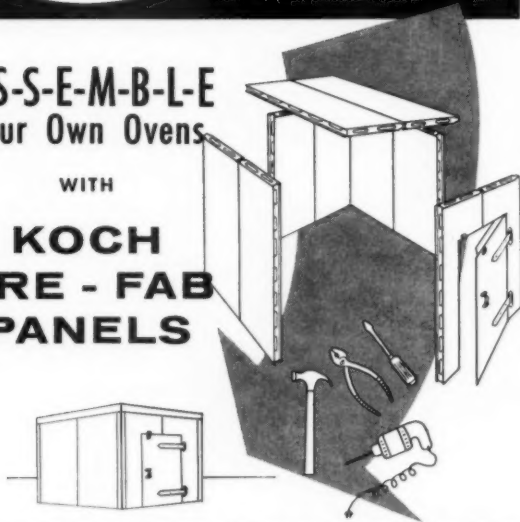
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Your Own Ovens

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These legs are only a few of the many Heavy Duty Legs designed and manufactured by Wilkenson for Vending Machines, Appliances, Store and Restaurant Fixtures, Kitchen Cabinets, Metal Desks, etc.

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Are you in need of an economical source of porcelain enameling of aluminum? We have complete facilities for prompt, economical, porcelain enameling of many sizes of aluminum panels and other relatively flat aluminum shapes that have been rolled, extruded, spun or cast. These include flat extruded panels, flat shapes for appliances, flat sheets and shapes for signs, and many types of aluminum extrusions for sundry purposes.

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tories. Vikon offers modern, completely automatic facilities and practical technical know-how. We would be pleased to discuss the suitability and cost of applying porcelain enamel to your aluminum products. Write, wire or phone today.

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### Vending Convention Set

Four days of workshops, discussions and speeches on a wide range of vending subjects are scheduled for the 1961 convention of the National Automatic Merchandising Association.

With business meetings scheduled for October 28-31, the convention also will feature the world's largest showing of vending equipment, products and allied services in Chicago's McCormick Place. The NAMA exhibit will occupy 100,000 sq ft of space.

A special feature of this year's convention is the first International Vending Symposium, where vending "around the globe" will be discussed and compared with American operations.

All workshops will take place at Chicago's Conrad Hilton Hotel.

### Rheem Reports 2nd Quarter Profit

Rheem Mfg. Co. moved back into the black in the second quarter of 1961, with a net profit of \$103,417 on sales of \$34,628,525. For the first half of 1961 the company reported a net loss of \$141,332.

### Maytag Earnings Increase

On practically identical sales, The Maytag Co. showed a 33 percent increase in earnings in the second quarter of 1961 over the same period a year ago, it was announced by Fred Maytag II, board chairman.

Sales for the quarter ending June 30 totaled \$26,357, 911, compared to \$26,597, 842 in the second quarter of last year. Earnings totaled \$3,090,917, representing 94 cents a common share, compared to \$2,325,499 in the second period a year ago.

### Midwest Quality Control Meeting

The 16th Midwest Conference of the American Society for Quality Control will be held October 19-20 at the Hotel Chase-Park Plaza, St. Louis.

Speakers on subjects ranging from "Statistics and Sex" and "Statistics and the Stock Market," through "Effective Installation of Quality Control," will develop the theme of the conference, "The Universality of Statistics."

ASQC is a national organization which encourages the development of statistical techniques to improve quality control in our nation's industrial process.

### Norge Hires 400 Workers

Nearly 400 workers were hired in August to increase clothes dryer output at the Effingham, Ill., Norge plant. Judson S. Sayre, Norge chairman, said that production expansion of a new clothes dryer and initial manufacture of a commercial-size dryer made possible the hiring program.

### GE Forms New Section

The formation of a new General Electric product section, the Central Air Conditioner Section, comprised of GE's Tyler, Texas, central air conditioner plant and its Trenton, N. J., furnace plant, was recently announced.

Heading up the new section is W. J. McCollugh, formerly manager of finance for the company's Air Conditioning Dept. in Louisville.

### Automatics Up 16% in June

Factory sales of automatic washers during June showed a substantial increase of 16 percent over June 1960, according to Guenther Baumgart, president of the American Home Laundry Manufacturers Association.

In addition to the increase in automatic washer sales, total sales of all home laundry appliances were up seven percent during the month from year-earlier levels. Total sales during June amounted to 375,318 units, compared with 351,717 units a year ago. Automatic washer sales were 239,107 units in June and 206,687 a year ago.

Cumulative sales of all products for the first half were eight percent below the comparable 1960 first half. Total unit sales for the half were 1,992,868 units as compared with 2,165,169 units a year ago.

### Roper Profits Up 37%

Richard S. Burke, president of Geo. D. Roper Co., has announced that the company realized a 37 percent increase in profits for the first half of 1961 over the comparable period in 1960. Profit before taxes for the first half of this year was \$561,247, compared with \$408,547 for the same period last year.

### Appliance Conference Set

The third Western Technical Conference, sponsored by the Los Angeles section of the American Institute of Electrical Engineers will be held at the Biltmore Hotel, Los Angeles, November 6. According to the conference committee, the program will be of interest to everyone associated with electrical and gas-

fired appliances and their control equipment. Particular emphasis has been placed on the use of appliances of both gas and electric design in the field of mobile homes.

### AllianceWare to Crane

Crane Co. has acquired the operating assets of AllianceWare, Inc., a subsidiary of American Metal Products Co., in exchange for 231,674 shares of Briggs Mfg. Co. common stock and a cash payment of approximately \$3,500,000.

The assets acquired by Crane include inventories and five manufacturing facilities: a plant in Alliance, Ohio, which produces AllianceWare pressed steel plumbing fixtures and AllianceWall, a porcelain enamel-on-metal product used in construction and remodeling; two potteries located in Somerset, Pa. and Evansville, Ind.; and two porcelain enameling plants located in Colton, Calif. and Kilgore, Texas. Currently, sales of AllianceWare are about \$10 million annually.

### American Metal Products

#### Acquires Interest in Briggs

American Metal Products Co. has acquired a 21-percent interest in Briggs Mfg. Co. and placed four of its directors on the Briggs board of seven. The new directors are Andrew M. Mras, R. Jamison Williams, Paul M. Corp and Douglas F. Roby.

Briggs manufactures bathroom and kitchen fixtures for residential, commercial and institutional use. It also does cold forming, stamping and porcelain enameling for industry.

### Maytag Increases Production

An increase in production schedules of clothes and combination washer-dryers has been announced by The Maytag Co. The increase was effective August 7.

Approximately 200 persons have been added to the firm's payrolls to meet the requirements of the increased production. According to Maytag officials, the increase is caused by a seasonal upturn in demand for the products.

### AIEE Announces Plans

The American Institute of Electrical Engineers has announced that plans are underway for the following committee and sub-committee functions: a one-day Appliance Conference, November 6, Los Angeles; Domestic Appliance Conference, Columbus, Ohio, May 23 & 24, 1962; Rural Electrification Conference,

TO PAGE 94, COL. 3 →



## U. S. Aluminum Siding Corp. Opens Franklin Park, Ill., Plant



U. S. Aluminum Siding Corp.'s new plant in Franklin Park, Ill., was recently opened. Total plant property exceeds 175,000 sq ft, with facilities for manufacturing, warehousing, and distributing aluminum building products. The new executive and sales offices, along with the research and design departments, have been moved to this plant, making Franklin Park the national headquarters of the company.

## "...easy Joe, that baby's worth a quarter million!"

### NEW DESPATCH OVEN DRIES TRANSFORMERS SAFELY, ECONOMICALLY

When products are worth \$250,000 apiece, processing mistakes can be costly.

That's why Wagner Electric Co., St. Louis, called on Despatch for a moisture removal oven.

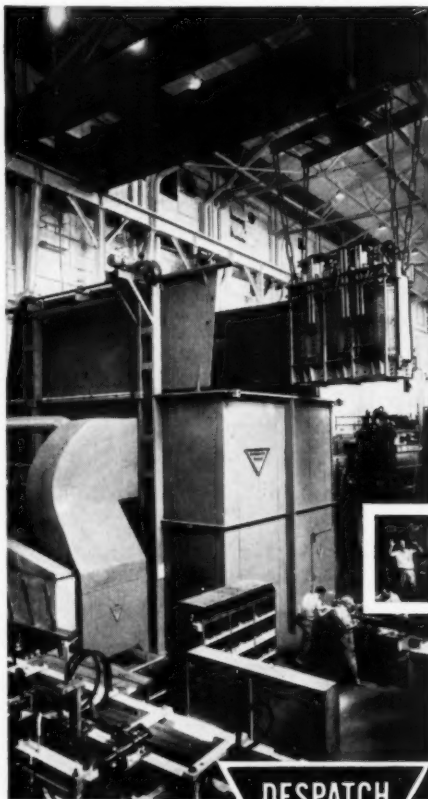
This new Despatch oven performs exactly according to specification. It also increases productive capacity and makes operations more versatile.

Drying Wagner's giant transformers—which range up to 100,000 kva—is a vital and critical step. Moisture must be removed, but heat must not damage insulation.

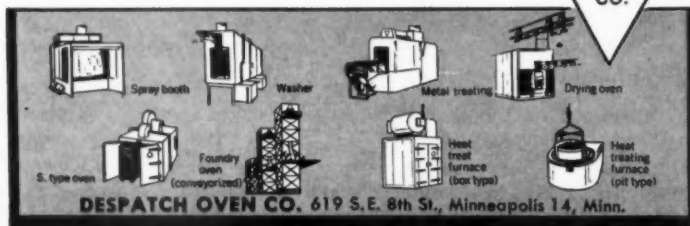
"We considered many other types," reports company official Charles Ruder, "but Despatch proved to be up to twice as economical."

Perhaps your firm has a similar problem. Our engineers will be pleased to discuss it with you . . . or any other in industrial heating, metal washing, spraying, etc. There's no obligation.

Write today for free bulletin 100GL.



**DESPATCH**  
OVEN  
CO.



## DESPATCH—INDUSTRY LEADERS FOR 58 YEARS

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Detroit, April 17 & 18, 1962; two electric heating technical sessions at the 1962 winter general meeting; and a technical session at the Pacific Coast general meeting sponsored by the West Coast Committee.

According to Clarence B. Grund, Jr., chairman of the Domestic and Commercial Applications Committee, proposals being considered for the coming year include the formation of a working group to handle matters concerning interior residential wiring and a working group to handle matters concerning commercial appliances.

Grund has also announced the following committee and sub-committee meetings: the Domestic and Commercial Applications Committee will meet during the 1962 winter general meeting in New York; and the Electric Space Heating and Heat Pump Subcommittee will meet during the same meeting.

## Robertshaw Building in Progress

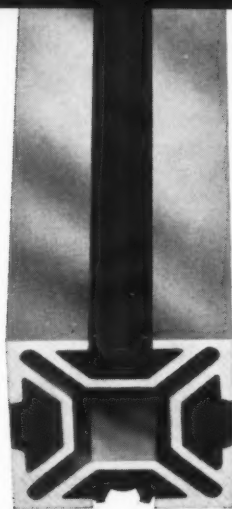


Thomas T. Arden, president of Robertshaw-Fulton, lays some of the first brick to be used in construction of the company's new executive offices in suburban Richmond, Va. The building will be ready for occupancy in the early summer of 1962, and will replace leased quarters presently occupied by the company in downtown Richmond.

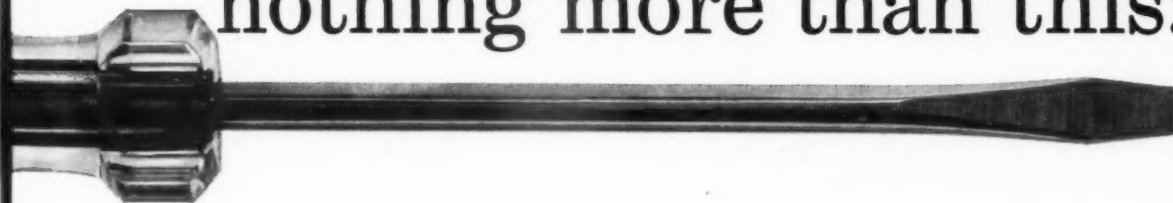
## Pemco Merged Into Glidden

Merger of the Pemco Corp. into the Glidden Co. has been approved by the directors of both companies. Plans for the merger were announced jointly by Dwight P. Joyce, Glidden chairman and president, and Richard Turk, board chairman of Pemco.

The transaction, which is subject to approval by shareholders of both companies, involves an indicated consideration of around \$10 million. Under the terms of the proposed agreement, Glidden will exchange 200,000 shares of a new 4¼ percent convertible preferred stock for the 100,000 outstanding shares



Because of this extrusion, engineered with Olin Aluminum, 15 floors of the TIME-LIFE building in New York City can be quickly re-shaped with nothing more than this:

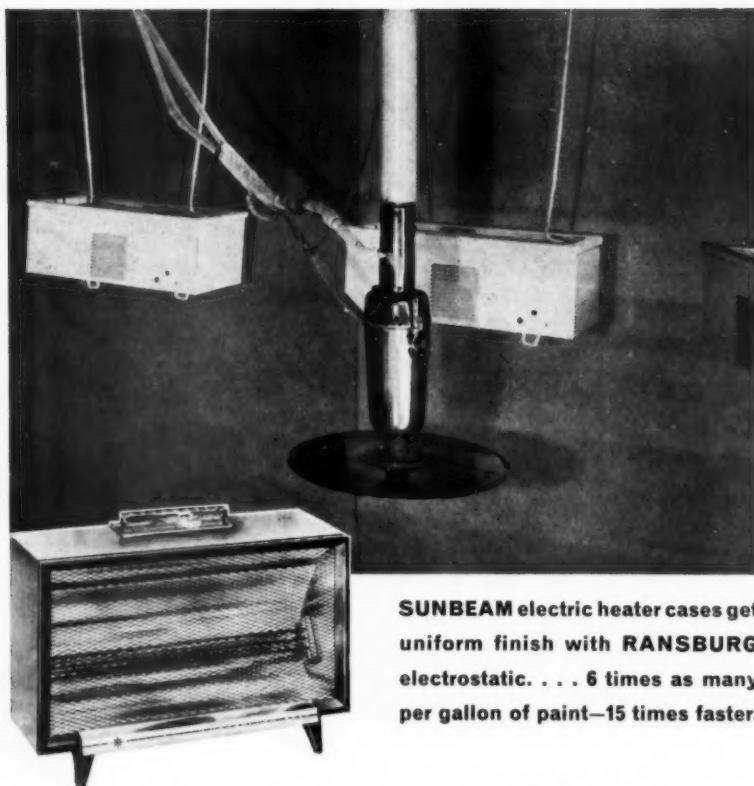


Olin engineers helped design this unique extrusion to serve as the universal junction of movable wall panels. The genius of this extrusion makes it possible to change office size, shape and color in jig time with nothing more than a screwdriver! So many Olin ideas like this have saved so much time and money for fabricators, design-

ers and architects that modesty forbids telling all. As versatile as aluminum is, it doesn't think, doesn't create designs, or doesn't fabricate itself. That's why Olin Aluminum offers you the services of its marketing and technical staff. They "think aluminum." Don't you think it would be a good idea to call Olin?

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**SUNBEAM** electric heater cases get uniform finish with **RANSBURG** electrostatic. . . . 6 times as many per gallon of paint—15 times faster.

## "Paint Mileage Leaps 500%.... Production Upped 15 Times" Reports ENAMELED STEEL & SIGN CO.

Curt Simmons, President, ENAMELED STEEL & SIGN COMPANY of Chicago, describes results with RANSBURG Automatic No. 2 Process Electro-Spray: "We first painted cases for the new SUNBEAM portable electric heaters with air hand spray at the rate of 200 pieces per day using 6 gallons of paint. Now, with RANSBURG electrostatic we've increased production 1400% to 3000 pieces daily with only 15 gallons of paint." An increase of 500% in paint mileage! *What would savings like this mean in your finishing department?*

### QUALITY IMPROVED WITH RANSBURG ELECTRO-SPRAY

Sags and runs, a problem with the air hand spray, have been eliminated with the automatic electrostatic equipment. Mr. Simmons adds: "Now we achieve a uniformity over the configured area which wasn't always possible before. We know the 50,000th piece will turn out the same as the first."

ENAMELED STEEL—sold on the efficiency and versatility of RANSBURG Electro-Spray—uses 14 automatic No. 2 Process units to meet the heavy demands of their diversified, high volume production.

### NO REASON WHY YOU CAN'T DO IT TOO

Manufacturers—large and small—are reporting similar savings in paint and labor with increased production. If your volume doesn't justify automatic electrostatic equipment, perhaps the RANSBURG electrostatic hand gun will help cut costs in your finishing operation. Write

for our new brochure showing actual in-plant production photos, savings figures and detailed information on RANSBURG No. 2 Process Electro-Spray.



## RANSBURG Electro-Coating Corp.

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SPAIN • SWEDEN and SWITZERLAND

Circle No. 358 on Reader Service Card.

of Pemco common stock, with the new Glidden issue convertible at any time into a total of 225,000 shares of Glidden common stock at an approximate conversion price of \$45 per share.

Glidden intends to operate Pemco as a separate unit of the company's Chemicals Group. Pemco, which was founded in 1910, produces porcelain enamel and ceramic frits, and inorganic colors. Glidden manufactures paint and other organic coatings and resins, plus a variety of food and industrial products.

### Kelvinator July Sales Up

July sales of Kelvinator major appliances were up 14.9 percent over July of last year and marked the fourth consecutive month in which sales have been up over year-ago periods.

Dealer billings for July also represented the second highest sales volume for any month since October, 1959. The sales increase for July was paced by laundry appliances and refrigerators.

### Williams Co. Acquires LF & C

The J. B. Williams Co., Inc., has announced that it has completed its acquisition of Landers, Frary & Clark, manufacturers of electrical and household appliances under the Universal and Universal Handy Hannah Deluxe trademarks.

### Carrique to Head Trade Group

J. G. Carrique, president of Alloycraft, Ltd., Montreal, was elected president of the Metal Finishing Suppliers Association at the group's annual meeting in Boston recently.



This is the first time a Canadian has been elected to the presidency of the association, whose membership is made up of the principal manufacturers and distributors of metal

finishing and electroplating equipment in the United States and Canada.

### Enamel Div. of ACS to Hold First Fall Meeting, Sept. 20-23

The Enamel Div. of The American Ceramic Society will hold its first fall meeting at the French Lick-Sheraton Hotel, French Lick, Ind., Sept. 20-23.

Concerned with ceramic-metal interactions, the division's technical program will deal with high-temperature protective ceramic coating, ceramic-metal com-



posites, ceramic coatings as adhesives, flame-sprayed ceramic and cermet coatings for metals, and ceramic coatings of dielectrics. Nineteen papers have been lined up by Division Chairman Loran S. O'Bannon, Battelle Memorial Institute, and Program Chairman R. S. Sheldon, Whirlpool Corp.

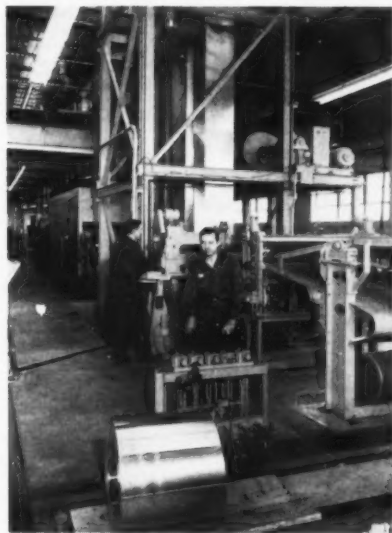
In addition to the technical program, entertainment has been planned to round out the meeting. Each evening will feature a social hour before dinner, and afterwards there will be an orchestra for dancing. A buffet dinner with informal entertainment will be held Thursday evening, with Friday night featuring a banquet. A golf tournament for the men will be held Friday afternoon.

### Coil, Sheet Coating Line

#### In Operation at Pre-Finish

A new line for continuous coating of metal coils and sheets is operating at near-peak capacity at Pre-Finish Metals, Inc., Elk Grove Village, Ill.

The coating line, shown at a recent press conference, handles coils in widths up to 48 in. and gages from .004 to .062. In addition, steel sheets in widths of 18



Operator places coiled stock on one of two pay-off spools at beginning of Pre-Finish coating line. Accumulator rolls in background contract when necessary to allow time for new coil to be stitched to coil in machine.

to 60 in., lengths of 4 to 12 ft, and gages from .012 to plate can be processed.

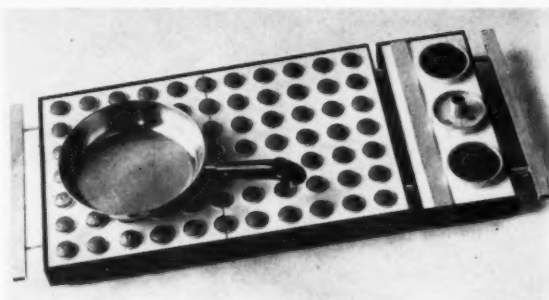
Peak capacity of the unit has not been achieved, but it is estimated that the initial output of 350 tons daily can easily be exceeded, a company spokesman said. The 450-ft line is housed in a new wing of the plant.

Available finishes include a variety of colors, textures, patterns and wood grains.

MORE NEWS ON PAGE 98 →

### Range Design Incorporates Floating Contacts

Developed under Aluminum Co. of America's Industrial Design Award program, range unit utilizes floating Calrod contacts. Placing a pan on the surface depresses the contacts beneath, closing an electrical circuit so they become heated. The product is all aluminum except for contact units. Designer is student Duncan Peek.



## new THERMAC model RA GAS RANGE REGULATOR



### Installs easily—Regulates perfectly

This new Thermac Range Regulator, with a swinging radius of only 1 3/4", can be installed easily and in any desired position to bring the advantages of perfect burner regulation to the operation of **your** gas ranges! Here are the outstanding features of this new unit:

- ★ Specifically designed for regulating low pressure, low volume flow
- ★ Maintains pre-adjusted burners regardless of inlet pressures
- ★ Uses the finest proven diaphragm material available
- ★ Valve and body castings are precision machined and bored
- ★ Factory pre-set to your specifications
- ★ AGA certified for natural, manufactured and LP Gas\*

Thermac—with over 17,000,000 Gas Regulators now in use—was first to supply a leading manufacturer a Regulator as an integral unit on all ranges, and now brings you this new and improved regulator for even wider range application. And...for all your gas appliance needs, you can choose from Thermac's complete line of Regulators, Gas Controls, Gas Shut-Off Valves, and hundreds of control combinations. Sizes range from pilot valves and regulators to controls handling up to 3,000,000 btu, all backed by 28 years experience building gas controls.

\*AGA approval pending at time of publication.

**Write for full details on the  
new Model RA Range Regulator—today!**

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finishing.....  
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## Pre Finished Metals

### Better finish . . . at lower cost!

Cut metal product finishing costs as much as 10% to 25% by using steel or aluminum coils or sheets *already pre-coated* by Pre Finish Metals, Inc., specialists in applying custom-formulated finishes! Pre-coating also assures a more uniform, better quality, more durable finish for either functional or decorative use.

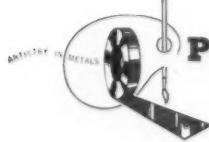
### Stamp, draw, shape, bend, or form it!

Pre-coated metal actually aids fabricating operations in your plant! The finish acts as a lubricant for better flow of material—and longer die life. You also save on production costs, reduce space requirements, and add product sales appeal.

### To meet your specifications!

Coatings are custom formulated and pre-tested to meet product fabricating and use requirements! Unlimited color variations, patterns, wood grains, and embossed designs are supplied in finishes ranging from organic coatings (organosols, plastisols, epoxies, acrylics, alkyds) to polyvinyl film laminates. *Supply your own metal or we will furnish.*

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### PEI 30th Annual Meeting To Highlight "Vitality"

The Porcelain Enamel Institute has announced that the theme for its 30th annual meeting will be "Vitality in Management." The meeting is scheduled for October 5 to 7 at The Greenbrier, White Sulphur Springs, W. Va.

W. H. Lowry, chairman of the annual meeting program committee, said nationally recognized authorities will speak on management, product design and marketing concepts.

### Nylon Casting Process Perfected

A new nylon casting process which is said to permit low-cost production of large, complex nylon shapes and parts has been announced by The Polymer Corp., Reading, Pa. Louis L. Stott, Polymer president, describes the new process as "monomer casting," a direct conversion of nylon from basic raw materials to finished parts or shapes.

According to the company, the process makes available to engineers a new material for the design of large bushings, cams, rollers and contour wear parts such as tooling dies, liners and guide blocks.

### Mahon Records High First Half

Walter F. Sheetz, chairman of the board of The R. C. Mahon Co., has disclosed that the company's Industrial Equipment Div. booked more orders for the first six months of this year than for any similar period since 1957.

The division is a supplier of finishing systems and processing equipment to the appliance, transportation and other metalworking industries. "We don't divulge dollar figures, but our 1961 industrial equipment sales are up better than 20 percent compared to the same period in 1960," Sheetz said.

### Bright Anneal Line Operating

D. W. Kaufman, stainless steel manager, Crucible Steel Co. of America, has announced that the country's first 48 in. wide bright annealing line at the firm's Midland, Pa. Works is in operation. The material is available in thicknesses from .010 to .0625 in. Cost of the operation was approximately \$1,250,000.

### Plastics in Appliances

#### Theme of SPE Conference

"Plastics in Major Household Appliances" will be the subject of a regional technical conference sponsored by the Kentuckiana Section of the Society of Plastics Engineers. The meeting will be held October 25 in General Electric's Monogram Hall, Appliance Park.

## Architectural Metal Groups Consider Consolidation

A meeting of representatives of trade associations representing various facets of the architectural metals industry was held in Chicago on Thursday, August 10, at the invitation of the National Association of Architectural Metal Manufacturers. Present at the meeting were key personnel from ten cooperative groups representing various sections of the fabricating division of the industry.

These included: Aluminum Extruders Council — Aluminum Window Manufacturers Assoc. — Hollow Metal Door & Buck Assoc. — Metal Grating Institute — National Ornamental Metal Manufacturers Assoc. — Sliding Glass Door & Window Institute — Steel Door Institute — Steel Window Institute — Western Architectural Metal Manufacturers — and Woven Wire Products Assoc.

Representatives who were in attendance from additional organizations invited to participate because of allied interests included:

American Iron & Steel Institute — Copper & Brass Research Assoc. — Porcelain Enamel Institute, Inc. — and Sheet Metal & Air Conditioning Contractors National Assoc.

Other guests and speakers in attendance included E. A. Kister, Allegheny Ludlum Steel Corp.; John E. Starrett, Perkins & Will, Architects; Max Schoetz, Aluminum Co. of America; and J. Stewart Stein, American Society for Testing Materials and past president of Construction Specifications Institute.

From the morning session which was attended by editors and editorial representatives of the leading metals publications, it was evident that representatives speaking for both ferrous and nonferrous metal, the architectural profession and many of the smaller, individual fabricator associations considered that it was high time that some plan be found to accomplish close cooperation and coordination of effort among the various individual cooperative groups and, possibly, consolidation for the common interest.

Speakers pointed to the fine advances that were made during recent years in the use of metal curtainwall and many other building components, but currently the road is indicated as being extremely rough as a result of the strong research and promotion programs of other building products groups. Lack of coordinated effort in research, production techniques and unified promotion were cited as serious difficulties in the present metal building products picture. Lowering of quality standards, particularly in connection with metal windows for residential use, was cited as an example of the open door to competition.

Under the leadership of Jack M. Roehm, president of NAAMM, all representatives in attendance were encouraged to "speak their piece" on the subjects of cooperation, coordination, and consolidation.

There appear to be two possibilities, as a result of this first meeting; one of cooperative action on research, standardization, promotion, etc.; and the other the possibility of a joint association.

The ten fabricating associations voted to establish a "council" to study and investigate cooperative action, including the possibility of a joint association. Roehm was elected temporary chairman and Wm. Wilson, Executive Secretary of NAAMM, was elected temporary secretary. A second meeting was scheduled for August 31 to assure early action.



At Imperial-Eastman Corporation, manufacturer of hydraulic and pneumatic systems components, A. J. Panico, metal cleaning dept. mgr., and D. McCormack, quality control mgr., compare finishing results with R. Dinsmore, Diversey D-Man.

## DIVERSEY DS-9 BRIGHT DIP puts lustrous finishes on stainless steel at less cost!

Every dollar you can cut from finishing costs puts your firm in a better competitive position. Diversey DS-9 not only cuts finishing costs, it improves the appearance of your products with a single immersion. On many parts DS-9 Bright Dip eliminates the need for more costly buffing, electro-polishing or grinding. Puts a brilliant finish on hard-to-polish, intricate shape parts yet uses no electric current (another area where you can cut costs). For removing heat treating scale, weld scale, scale from forgings, or simply to provide superior finishing, you'll find Diversey DS-9 Bright Dip gives you the finish you need at a cost you'll appreciate. Also you can now bulk dip and save money.

Call your Diversey D-Man and ask for a trial order of DS-9 Bright Dip concentrate, available at nominal cost.

For complete literature write  
**THE DIVERSEY CORPORATION,**  
212 W. Monroe St., Chicago 6, Illinois.  
In Canada: The Diversey Corporation  
(Canada) Ltd., Clarkson, Ontario

# DIVERSEY®



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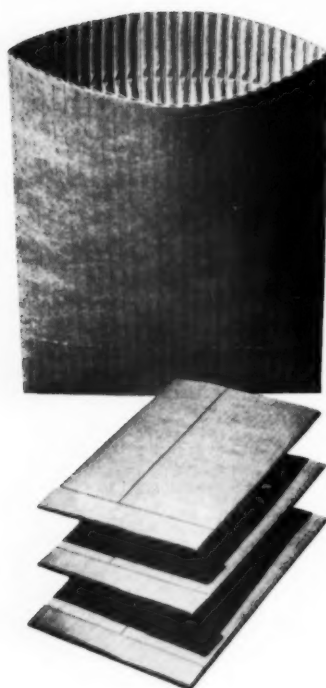
### As Mr. McCormack put it:

"My department is interested in quality. DS-9 Bright Dip delivers a better quality finish on stainless steel fittings and has substantially reduced reject rates because it completely removes scale."

### From the production line Mr. Panico reports:

"Production scheduling used to be a major headache when stainless steel forgings were cleaned outside the shop. Now we have complete production control and we have cut high-cost, in-work inventory."





## PROTECT FINISHED PARTS

Here's a fast, low-cost way to give cushioned protection to finished parts — in master cartons, in-plant storage, or shipment. Fast and easy to use, Corro-Bags have cushioning protection built in. No shredded fillers to spill out if bag is punctured. Corro-Bags are available in a range of standard sizes from your nearby Sherman distributor. For a size range of samples, write Dept. M.

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DIVISION OF **St. Regis**  
PAPER COMPANY

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## METAL PRODUCTS STATISTICS

		1961 (Units)	1960 (Units)	% Change
Gas Furnaces	June	82,200	79,900	+ 2.9
	Jan.-June	394,800	394,800	—
Gas Boilers	June	15,947	14,202	+12.3
	Jan.-June	61,309	57,941	+ 5.8
Gas Conversion Burners	June	10,500	10,400	+ 1.0
	Jan.-June	40,200	49,000	-18.0
Oil-Fired Central Heating Equipment	May	34,813	38,099	- 8.6
	Jan.-May	180,171	190,480	- 5.4
Gas Ranges, Free-Standing	June	131,900	127,600	+ 3.4
	Jan.-June	686,900	762,900	-10.0
Gas Ranges, Built-In	June	37,300	38,900	- 4.1
	Jan.-June	170,200	173,100	- 1.7
Gas Water Heaters	June	185,200	256,000	-27.7
	Jan.-June	1,368,600	1,355,300	+ 1.0
Gas Vented Recessed Wall Heaters	June	22,500	26,300	-14.4
	Jan.-June	146,700	160,700	- 8.7
Gas Floor Furnaces	June	3,500	4,400	-20.5
	Jan.-June	24,900	30,900	-19.4
Gas Direct Heating Equipment	June	99,600	116,100	-14.2
	Jan.-June	352,000	405,600	-13.2
Gas Unit Heaters & Duct Furnaces	June	11,600	11,000	+ 5.5
	Jan.-June	70,400	73,800	- 4.6
Gas Incinerators	June	3,400	3,300	+ 3.0
	Jan.-June	20,000	23,100	-13.4
Electric Household Refrigerators	June	353,400	314,706	+12.3
	Jan.-June	1,686,300	1,813,700	- 7.0
Electric Farm & Home Freezers	June	53,508	44,370	+20.6
	Jan.-June	211,996	240,635	-11.9
Electric Ranges, Free-Standing	June	69,600	69,000	+ 0.8
	Jan.-June	436,100	445,200	- 2.1
Electric Ranges, Built-In	June	145,000	127,200	+14.0
	Jan.-June	790,700	791,800	- 0.1
Electric Water Heaters	June	71,900	62,300	+15.4
	Jan.-June	374,200	375,700	- 0.4
Electric Dishwashers	June	14,500	17,300	-16.2
	Jan.-June	111,965	115,200	- 2.8
Electric Food Waste Disposers	June	75,200	62,000	+20.1
	Jan.-June	387,000	380,800	+ 1.6
Dehumidifiers	June	54,800	81,900	-33.1
	Jan.-June	241,500	302,000	-20.0
Combination Washer-Dryers	June	10,318	9,812	+ 5.0
	Jan.-June	52,893	79,866	-34.0
Washers—Automatic & Semi	June	239,107	206,687	+16.0
	Jan.-June	1,199,447	1,228,852	- 2.0
Washers—Wringer & All Other	June	65,188	70,268	- 7.0
	Jan.-June	324,518	373,854	-13.0
Electric Dryers	June	43,402	42,047	+ 3.0
	Jan.-June	277,470	312,328	-11.0
Gas Dryers	June	17,303	22,903	-24.0
	Jan.-June	138,540	170,269	-20.0
Metal Furniture	Jan.-June	*	*	-17.0
Vacuum Cleaners	June	242,001	245,790	- 1.5
	Jan.-June	1,598,316	1,682,468	- 5.0
Typewriters	June	102,382	*	*
	Jan.-June	530,986	*	*
Room Air Conditioners	June	233,800	237,500	- 1.6
	Jan.-June	1,199,800	1,159,900	- 3.4
Unitary Air Conditioners (1)	Jan.-March	77,551	62,856	+23.0
Steel Barrels & Drums	May	2,810,812	2,740,762	+ 2.6
	Jan.-May	12,747,801	12,429,884	+ 2.6
Steel Pails	May	7,096,949	6,609,606	+ 7.4
	Jan.-May	30,821,810	30,737,566	+ 0.3

(1) Including heat pumps

\* Not reported

Sources for this information: Gas Appliance Manufacturers Association, National Electrical Manufacturers Association, American Home Laundry Manufacturers Association, Vacuum Cleaner Manufacturers Association, National Association of Furniture Manufacturers, Electronic Industries Association, Air-Conditioning and Refrigeration Institute, and U.S. Dept. of Commerce.



## editorial voice of the national safe transit program

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DANA CHASE PUBLICATIONS, INC.

Devoted to improving packaging, shipping, and materials handling methods for the appliance and metal products manufacturing industries. This section contains information on plant experience and industry advances for improving packaging and shipping methods, and prevention of in-transit loss. It also contains information on the National Safe Transit Committee's preshipment testing program and reports on NST activities.

### Revision Proposed for Federal Specification PPP-P-600

National Safe Transit Committee, Inc. has once again been asked to serve as the industry coordinating agency for the proposed revision to Federal Specification PPP-P-600, May 1, 1958, Porcelain Enamel Products and Major Household Appliances—Test Requirements for Packaging.

Early comments indicate a widespread opinion that the proposed revision is stronger and clearer than the original specification, and the general belief expressed to date is that the scope of the specification should be greatly enlarged. As further information about this important specification becomes available, MPM will report it.

### Plant Analysis Program For Reducing Costs

A new Plant Analysis Program enabling manufacturers to obtain cost reductions through container utilization has been announced by Chicago Mill and Lumber Co., Chicago. The program is called "Cost Reduction Through Container Utilization."



J. H. DUNN

Its purpose is to determine the *total function* containers should provide to save time and money in various manufacturing steps throughout a plant. The program encompasses four major cost areas: receiving,

in-plant handling and storage, inter-plant movement and shipment. It takes into consideration a multitude of cost factors such as palletization, utilization of floor space, parts protection, inventory control, inspection, assembly, etc.,

to determine how containers can be used to improve the performance of these functions to reduce manufacturing costs.

J. H. Dunn, president of Chicago Mill and Lumber Co., states: "Many manufacturers think of containers strictly in terms of what they cost upon arrival at their loading dock. However, it is the complete function of the containers that determines their cost. If containers can be made and utilized as a production tool to save a number of steps or operations in the manufacture of the product, then container function increases while their costs decrease. Chicago Mill and Lumber Co. is in an unusual position to offer this Analysis Program because we consider containers to be a methods tool that can be used as an aid to manufacturing functions."

A copy of a "Container Utilization Evaluator" will be sent to any manufacturer upon request to Chicago Mill and Lumber Co., 33 S. Clark St., Chicago 3, Ill.

### Rail Car Retaining Strips

Bemis Bros. Bag Co. has developed an easy-to-install paper retaining strip that prevents slippage of rail-shipped products into storm doorways.

The retaining strips have no steel bands and require no special tools or materials which, according to the company, allows for faster and safer installation.

Constructed of heavy-duty extensible kraft paper reinforced with Fiberglas scrim and rovings, the retaining strips are installed across the doorway by built-in nailing strips. The strips are randomly nailed to the car wall about six in. from each side of the doorway, allowing the cooperer to bypass parts of the wall that have been splintered by previous nailings.

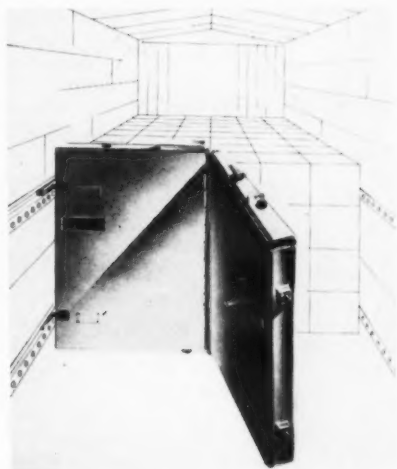
Circle No. 235 on Reader Service Card.

### Packaging Association of Canada Opens Quebec Chapter Office

F. C. Hayes, president of Packaging Association of Canada, recently announced that the association has opened an office to service the Quebec Chapter. It is located in the Industrial Arts Building, 4467 St. Catherine St., W., Westmount 6, P. Q.

### Bulkheads for Boxcars

Youngstown Steel Car Corp. announces the availability of their new "Rollok" Fold-a-way Bulkheads for boxcars. They are said to be simple to operate — rolling into position with a minimum of effort. The bulkheads are suited for low-center-of-gravity loads and also permit visual inspection without moving it away from the load.



Circle No. 236 on Reader Service Card.

### Packaging for Vending Machines

The Packaging Association of Canada, Ontario Chapter, through the Canadian Package Design Council, will present "Packaging for Vending Machines" at the King Edward Sheraton Hotel, Toronto, September 21, 1961.

### Packaging Machinery Manufacturers Show "Sold Out"

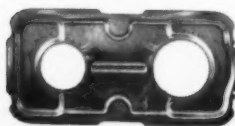
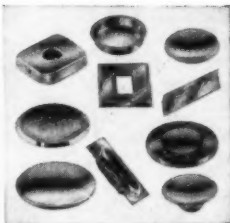
The Packaging Machinery Manufacturers Show of 1961, scheduled to be held at Cobo Hall, Detroit, Mich., November 7-10, 1961, is "sold out," according to W. W. Anthony, Jr., chairman of the show committee. The national trade association's board of directors have decided to hold the exhibit space for packaging machinery and closely related packaging materials to its present layout.

The PMMI Show of 1961 will present the products of 216 exhibiting firms.

## Mass Produce These Parts On Your Production Line

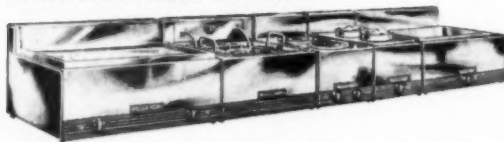
Just form, package and ship any of the items shown...and countless more. They're fast, easy and economical to fabricate from APOLLO Pre-Finished Metals. Use the same equipment as for ordinary sheet metal.

Attractive hardware items in unlimited variety are being manufactured more economically and faster from APOLLO Pre-Finished Brass and Bronze. Available pre-polished and pre-enameled, or pre-finished with bright or satin chrome—the uniform beauty of these parts cannot be equalled by costly piece finishing.

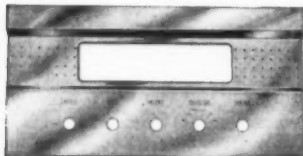


Aerator pans, oven and rotisserie linings, back rail trim, stove doors and tops and broiler pans can be mass produced at less cost when made from APOLLO satin or bright

finished tarnish-resistant ChromSteel.



There's nothing as effective as gleaming APOLLO Pre-Finished ChromSteel to simplify production of all types of food service equipment. Sturdy, tarnish-resistant, easy to work, weldable, APOLLO ChromSteel permits a finer job at a fraction of the cost of piece finishing, while greatly increasing production.



APOLLO Satin-Finished BrasSteel is ideal for radio, Hi-Fi and TV cabinet trim, control panels and hardware. Pre-finished surface allows

embossing, patterning and silk-screening operations to be performed before forming...cuts costs...saves time.

Deep draws, such as in this oven door, are no problem when fabricated from Specification Plate on APOLLO ChromSteel. Severe stretching will not draw out the characteristic finish or lessen the corrosion resistance of satin finishes.



Get the facts on how you can eliminate time-consuming shop operations, simplify and increase production. Contact APOLLO today.

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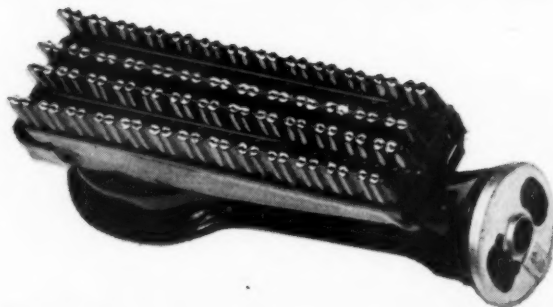
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# MPM

## new Industrial literature

### AUTOMATIC MERCHANDISING "BLUE BOOK"

The 1961 edition of the complete source book to the automatic merchandising industry is off the presses and available, according to the National Automatic Merchandising Association, publishers of the volume.

Titled "Blue Book of Automatic Merchandising," the 214-page book lists vending machine manufacturing companies, vendible product suppliers, manufacturers of component parts and services, and operating companies of NAMA. Cost of the book is \$3.00 for a single copy and \$1.50 each for additional copies.

Orders should be directed to NAMA, 7 South Dearborn St., Chicago 3, Ill.

Circle No. 114 on Reader Service Card.

### VINYL-ALUMINUM LAMINATES

A 20-page, spiral-bound booklet, "Design with 'Alcoa Vynalate,'" contains actual samples of 39 special vinyl color-pattern combinations, including plain colors, a wide variety of special designs, and wood grain effects.

Illustrations show suggested uses, including appliances, housewares, radio-TV, coin-operated machines, and other applications. Announced at the 1961 Design Engineering Show, Vynalate was developed to provide a vinyl-aluminum laminate in wide coils as well as flat sheets.

Circle No. 115 on Reader Service Card.

### FASTENER HANDBOOK

A 56-page fastener handbook has been published by Southco Div., South Chester Corp. The book contains complete data on a wide variety of specialty fasteners, including sizes, dimensions and installation facts.

Circle No. 116 on Reader Service Card.

### POWER PRESS EQUIPMENT

A new Cooper Weymouth press room equipment catalog contains details and specifications on air and mechanical operated slide feeds, automatic roll feeds, stock reels, straightening equipment and scrap choppers.

Circle No. 117 on Reader Service Card.

### IRON PHOSPHATING MATERIAL

A new booklet outlines the merits of Oakite CrysCoat 187, an iron phosphating material especially designed for simultaneous cleaning and phosphating by tank application. Chemical stability, positive corrosion control, long solution life and dual action of cleaning and phosphating are among the advantages cited for the material.


The booklet contains a technical product description, a brief method outline for applying the material, and data on solution control.

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MORE NEW LITERATURE ON PAGE 104 →


MPM SEPTEMBER • 1961

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## HIGH DENSITY ALUMINA MILL LINING BRICK


Longer life! Less relining! Lower costs! Minimum pickup! 1½-inch, 2-inch and 2½-inch thicknesses!



Lifter bars available!

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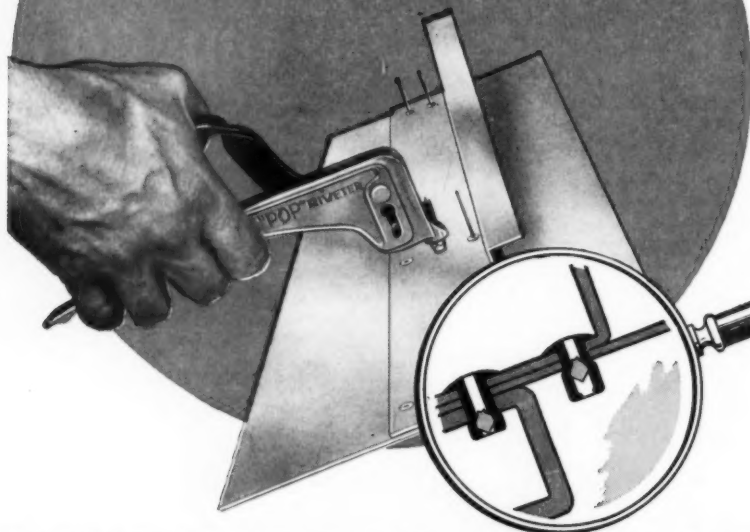


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REFRACTORY PORCELAIN COMPANY  
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ONE DOZEN REASONS WHY  
**UNITED "POP" RIVETS**  
run rings around the rest



## WIDE GRIP RANGE

Wide grip range lets you use just one rivet length for thick or thin work sections. For example, a No. 610 "POP" Rivet has a grip range of nearly 5/8" and can be used for work from .020" to .065" in thickness! This simplifies your fastener specification problems . . . and greatly reduces your inventories. Ordering greater volume per size, you'll secure the lowest possible rivet price. You'll eliminate a source of operator error, because "POP" Rivets don't depend on close matching of rivet length to work thickness for high fastening quality. And this same non-critical length factor also makes "POP" the ideal fastening for thin materials; even .020" soft aluminum can be fastened securely without stripping!

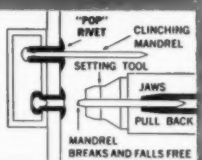
If you want to improve the quality, appearance and sales appeal of your products . . . and cut fastening costs at the same time . . . be sure to investigate all of the reasons why "POP" Rivets run rings around the rest! Write today for complete information . . . and for the name of your local "POP" Rivet Distributor.

Genuine "POP" Rivets Are Available Through a Large Network of Distributors Throughout The Country.



### HERE'S HOW THEY WORK

"POP" Rivets are inserted and set from the same side: (1) Rivet is inserted in the work. (2) Jaws of the easy-to-use setting tool grasp the mandrel. (3) Tool is operated. Jaws pull back, rivet is set. Mandrel breaks and falls free.



FASTENER DIVISION • UNITED SHOE MACHINERY CORPORATION  
1938 River Road, Shelton, Connecticut, U.S.A.

Circle No. 367 on Reader Service Card.

### CHROMATE CONVERSION COATING

A new chromate conversion coating for zinc or cadmium which is said to eliminate the handling of liquid acid in chromating is described in Technical Data Sheet No. 129, a three-page usage and instruction sheet prepared by MacDermid, Inc.

Called Macro Brite L-10B, the product produces either a leach-type bright finish or an iridescent bronze finish. Control and maintenance are simplified, since the product is in dry powder form easily dissolved in water.

Circle No. 119 on Reader Service Card.

### 96-PAGE TOOL CATALOG

A completely revised 96-page catalog, describing "the world's most complete line of industrial power tools and accessories," has been issued by Rockwell Mfg. Co.'s Delta Power Tool Div. Some of the new industrial tools described are Delta's line of 20-in. and 17-in. power feed drill presses, the new 12-in. cut-off machine and the 7-in. standard grinder.

Also described are the company's complete lines of drill presses, grinders, shapers, planers, jointers, metal and wood cutting lathes, tilting arbor saws, unisaws, band saws and radial saws.

Circle No. 120 on Reader Service Card.

### RUST CONTROL DURING PRODUCTION

An eight-page guide to controlling rust during production operations has been incorporated into a "Rust Control Data File," offered by Magnus Chemical Co., Inc. The guide details the known and little-known causes of rust, the six factors vital to successful rust control, the specialized rust prevention products which are available, and methods of selecting the proper rust preventive for specific operations.

Circle No. 121 on Reader Service Card.

### VIBRATORY MATERIALS CATALOG

A new condensed catalog of vibratory materials handling equipment, vibrating parts handling equipment, mechanical shaft seals, paper joggers, portable power tools and power rectification equipment has been published by Syntron Co.

The new catalog contains over 200 illustrations and presents descriptions, data and specifications on all Syntron products.

Circle No. 122 on Reader Service Card.

### ACID-PROOF CEMENTS

"Resistance Charts for Acid-Proof Cements," a new bulletin to be used as a guide in selecting the proper acid-proof cement for corrosion-proof installations, is available from the Acid-Proof Cement Manufacturers Association. The bulletin contains a list of more than 75 corrodent solutions and a rating for the various types of acid-proof cements at temperatures of 75 F and 140 F.

Circle No. 123 on Reader Service Card.

### MAKE-UP AIR SYSTEMS

A 16-page make-up air systems catalog depicting six basic types of Sun-Flo direct gas-fired make-up units is offered by Metals

For further information on  
New Industrial Literature,  
use Reader Service Card  
on pages 89 & 90.

Engineering & Mfg. Co. The units are available in a total of more than 40 models with capacities ranging from 5000 cfm with 750,000 Btu/hr to 150,000 cfm with 15 million Btu/hr.

Also shown are nine models of Sun-Flo burner sections and make-up air systems accessories including shut-down damper sections, door heat seals, angle filter banks, roof hood air intakes, wall intake louvers and louver towers.

Circle No. 124 on Reader Service Card.

#### HANDLING CORROSIVE FUMES

Fans, air washers and exhaust systems made of pvc to handle corrosive fumes are described in a 36-page Catalog issued by Industrial Plastics Fabricators, Inc. The catalog includes complete details on the company's line of unplasticized Type I, pvc centrifugal, Tubeaxial, utility fans and air washers. Photographs, dimension diagrams, performance tables and descriptions of each item are listed separately.

Circle No. 125 on Reader Service Card.

#### MEASURING INSTRUMENTS

A bulletin recently issued by Photovolt Corp. details a line of photoelectric and electronic measuring instruments. Included in the description are instruments for pH, oxidation-reduction, titration measurements, colorimetry, turbidimetry and photomicrography.

Discussed are applications, accessories, and design features. All instruments are illustrated and prices are listed.

Circle No. 126 on Reader Service Card.

#### PREPARING ALUMINUM FOR WELDING

A new, illustrated booklet titled "The Chemical Preparation of Aluminum for Resistance Welding" has been released recently by Oakite Products, Inc. The theme of the booklet is that "the removal of high resistance oxide films from aluminum is most simply and efficiently accomplished chemically."

Among the major topics discussed in the booklet are cleaning in preparation for deoxidizing, cold and hot deoxidizing and etch-cleaning to obtain a mat finish. The booklet probes into the variables involved in resistance welding and points out that "more important than resistance limits is uniformity of resistance."

In addition, the booklet contains complete, detailed outlines for four specific weld preparation procedures, numerous suggestions for achieving the best welding results, a procedure for deoxidizing sheet stock, capsule descriptions of seven products which are recommended in the booklet, and an explanation of the importance of rinsing and drying.

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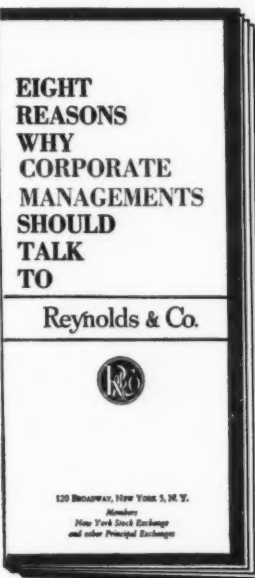
The various areas in which we can help executives are summarized in a new brochure entitled "Eight Reasons Why Corporate Managements Should Talk To Reynolds & Co." For your copy, just clip this coupon to your corporate letterhead.

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(YOUR NAME. PLEASE PRINT.)

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FAIRMONT ALUMINUM CO. ....HL-38	SAMUEL STAMPING & ENAMELING CO. ....102
FERRO CORP. ....16, 17 & HL-34	SHERMAN PAPER PRODUCTS CO. .100
GENERAL BEARING CO., INC. .... 9	SOUTHERN SCREW CO. ....24
GENERAL INDUSTRIES CO., THE ..91	THERMAC CO. ....97
GOODRICH CHEMICAL CO., B. F. ..14	TUTTLE ELECTRIC PRODUCTS, INC. .30
GRAY CO., INC., THE ....88	UNION STEEL PRODUCTS CO. ....3RD COVER
GREENWALD CO., H. ....HL-42	UNITED SHOE MACHINERY CORP., FASTENER DIV. ....104
HAGEN MFG. CO., DIV. EAGLE SIGNAL CORP. ....HL-40	UNIVERSAL SCREW CO. ....HL-36
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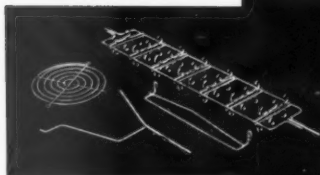
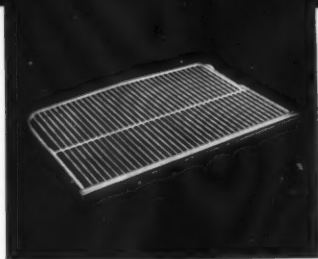
### Armco Bets \$8.5 Million

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ican Iron and Steel Institute. Industry estimates for 1961 shipments reach as high as 3,300,000 tons, and Johnston offered his personal estimate as "approximately ten percent" over 1960. He pointed to the fact that zinc coated tonnage has approximately doubled since the early postwar years, while steel as a whole has grown 66 percent. He credited "product innovations and improvements" as largely responsible for this trend.

### Recent developments

During 1961 a number of new surface finishes are helping to stimulate the use of galvanized sheet and strip in the appliance, automotive, and other markets. Three of these coatings are: *differential coatings* — one side standard weight, the other minimum zinc coating for maximum paintability; *spangle-free chemically treated surface* — Armco calls it new Zincgrip A, Paintgrip — a spangle-free sheet chemically treated for painting, to carry a standard of 1.25 oz class coating; and *minimum spangle* — to meet surface requirements between "standard" and spangle-free sheets. **MPM**



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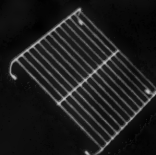
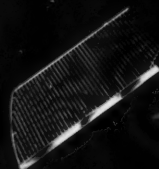
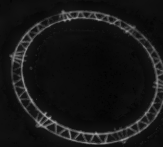
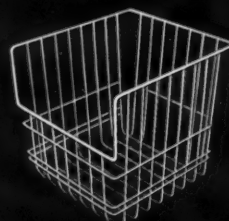
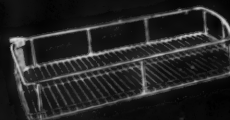
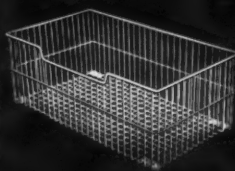
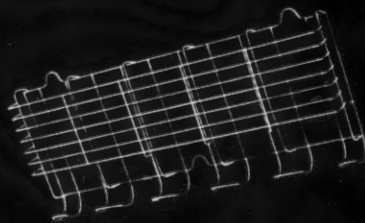
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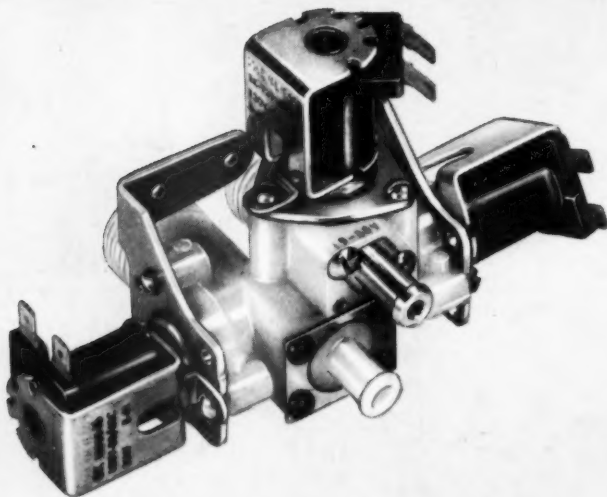
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